BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 26 1946

THE BLOOD GROUP Rh*

BY

D. F. CAPPELL, M.D., F.R.S.Ed.

(From the Department of Pathology of the University and Western Infirmary, Glasgow)

PART I

A REVIEW OF THE ANTIGENIC STRUCTURE AND SEROLOGICAL REACTIONS OF THE Rh SUBTYPES

The discovery of the Rh factor illustrates very strikingly how pure scientific research may yield unforeseen results of great practical importance. Physicians who frequently practised blood transfusion had long been aware that, in spite of the most careful matching of the donor's blood by the methods then in use, some patients receiving repeated transfusions became progressively more difficult to transfuse owing to the occurrence of severe reactions. It was also known that such intra-group transfusion reactions occasionally occurred at the first transfusion, but only where the patient was pregnant or had been recently delivered. The finding of "irregular" iso-agglutinins in the blood of such a case had also been recorded (Levine and Stetson, 1939). The term "irregular" implied that these agglutinins did not conform to the scheme of the four blood groups, A, B, AB, O. But these observations remained isolated and uncoordinated until the discovery of the Rh factor by Landsteiner and Wiener in 1940.

These workers observed that the injection of blood from rhesus monkeys into rabbits or guinea-pigs led to the development of antibodies which reacted not only with the red blood cells of those monkeys but also with the cells of 85% of the white population; such persons were termed Rh-positive and the remaining 15% Rh-negative. It is interesting to note that the cells of some primate monkeys—e.g., chimpanzees—are uniformly Rh-negative (Wiener and Wade, 1945). Almost immediately Wiener and Peters (1940) applied the discovery of the Rh factor in man to the identification of the irregular iso-agglutinins found in three sufferers from incompatible intra-group transfusion reactions.† It was shown that all three recipients were Rh-negative, while the transfused blood was Rh-positive; accordingly they explained the intra-group incompatibility by the hypothesis that the Rh factor of the transfused blood had acted as an antigen and had brought about iso-immunization of the Rh-negative recipients. Levine and his co-workers (1941) then demonstrated that the liability to severe intra-group transfusion reactions in the puerperium, usually associated with some foetal abnormality such as hydrops or erythroblastosis, was due to iso-immunization of Rh-negative women by pregnancy with a Rh-positive foetus, and they suggested that not only the maternal transfusion reaction but also the foetal disease was brought about by the action of Rh antibodies. These fundamental observations were quickly confirmed by workers in this country (Boorman, Dodd, and Mollison, 1942; Race, Taylor, Cappell, and McFarlane, 1943), and the various disorders—hydrops foetalis, icterus gravis, and congenital anaemia—were included under the heading "haemolytic disease of the newborn." The significance of iso-immunization of Rh-negative mothers was shown by statistical studies: thus about 90% of the mothers of infants with haemolytic disease were found to be Rh-negative, while all the infants were Rh-positive.

Wartime difficulties made it impossible for most workers in Great Britain to use immune sera prepared against the cells of rhesus monkeys, but sera from Rh-negative persons who had suffered intra-group transfusion reactions and sera from the mothers of erythroblastotic babies were found to be suitable for the classification of human bloods into the Rh-positive and Rh-negative types. Family studies have shown that the Rh factor is inherited as a simple Mendelian dominant‡ determined by an allelomorphic pair of genes—Rh and rh—but it must be noted that the Rh-negative quality of blood (rh) does not imply merely the absence of the Rh-positive quality (Rh), for it will be shown later that both Rh and rh are responsible for the presence of antigens in the red cells each of which can be detected in specific fashion by its appropriate antiserum. The Rh–rh genes are situated upon a different pair of chromosomes from those for the ABO and MN groups. When an individual possesses two similar genes for a character he is said to be homozygous; when dissimilar genes are present he is heterozygous for that character. There are thus three genetic classes of persons—the homozygous Rh-positive (RhRh), the heterozygous Rh-positive (Rhrh) and the homozygous Rh-negative (rhrh). Further, it will be shown below that Rh and rh are not simple entities, but represent gene-complexes, each of which is composed of three closely linked genes, and some at least of the gene loci are the seat of multiple allelomorphism.

The Discovery of Irregular Agglutinins acting on the Rh-negative Gene Product (rh)

In 1941 Levine, studying the serum from the Rh-positive mother of an erythroblastotic baby, detected a weak agglutinin giving about 30% of positive reactions, which he named anti-Hr because it reacted with all Rh-negative bloods. This was the first instance of an "irregular" agglutinin acting against the Rh-negative component (rh). Further development on these lines by the American workers seems to have been hindered by their possessing at this time only a weak serum which missed many bloods. Details concerning such sera were not published until further and more powerful examples had been found by Waller and Levine (1944) and by Wiener, Davidsohn, and Potter (1945). Meanwhile, independently, a powerful irregular agglutinin was detected by Race and Taylor (1943) in the serum of an Rh-positive mother whose second and third children suffered from haemolytic disease. This serum (then named St after the patient's surname) was proved by a large-scale investigation to react with 80% of all bloods, including all Rh-negative

* A B.M.A. lecture delivered before the Ayrshire Division on Feb. 24, 1946.

† Moureau (1941) made similar observations independently, but his work was obscured by the war.

‡ It is, of course, recognized that this is not true Mendelian dominance, and that with appropriate reagents both Rh and rh can be detected.

bloods. It was therefore important to know whether this serum would detect the Rh-negative factor where it was associated with a Rh-positive factor—e.g., in the heterozygous state—and this it was found to do. In the first place, certain heterozygotes could be identified on genetic grounds—viz., the Rh-positive children of a Rh-negative parent or the Rh-positive parent of a Rh-negative child—and all of these were found to react positively with the St serum. It was also observed that the reactions with heterozygote bloods were weaker than those with homozygous Rh-negative cells and gave a lower titre or end-point. Consequently it was possible to deduce from the results of titration whether a given blood contained one or two Rh-negative factors reacting with the St serum. This has been termed the "single dose" and "double dose" effect, and explains why Levine's original anti-Hr serum gave such a low proportion of positive results (about 30%); clearly it detected only the "double dose" cells—i.e., the homozygous Rh-negatives (15%) and the type now known as Rh_2 (15%). (Later it was shown that the 20% which reacted negatively lacked the Rh-negative (rh) gene complex—i.e., they were mainly the homozygous Rh_1Rh_1 group—see below.) It is now clear that the anti-Hr sera of Levine and of Wiener are similar to the St serum of Race and Taylor and, accordingly, that Levine's hypothetical Hr factor is merely that part of the Rh-negative (rh) gene-complex which is specifically detected by such sera. Levine and Wiener independently demonstrated that the Hr property behaves, when anti-Hr serum is used to detect its presence positively, as a simple Mendelian dominant, but they have been reluctant to include this property in the Rh scheme of genotypes. To postulate an independent pair of allelic genes for the inheritance of Hr is not sufficient to explain its complex relationships with the Rh genotypes; for a powerful anti-Hr serum like St reacts with approximately 80% of bloods, including both the Rh-positive type and the Rh-negative. Not only must the Hr genes be situated upon the same chromosome pair as the Rh genes but in fact they form an integral part of the Rh gene-complex, as is shown below.

Other Irregular Agglutinins

The intensive study of sera from cases of transfusion reaction and from mothers of infants with haemolytic disease soon revealed the occurrence of other sera possessing very different specificities. In England two sera (identified by the initials K.J.) from Rh-positive mothers of affected infants were found almost simultaneously which reacted with 30% of all bloods, including a very few found to be Rh-negative with the standard 85% sera (Race, Taylor, Boorman, and Dodd, 1943); and shortly afterwards we obtained from a Rh-negative mother who had given birth to a macerated foetus a serum which agglutinated about 70% of all bloods, including about 1% of bloods negative with standard anti-Rh serum (85%) but failing to agglutinate about 15% of bloods positive with the 85% serum (Race, Taylor, Cappell, and McFarlane, 1944). Thus British workers had obtained four separate types of sera containing irregular agglutinins—referred to hereafter as "standard anti-Rh_0," "80%," "70%" (revised anti-Rh′ of Wiener), "30%" (revised anti-Rh″ of Wiener) sera. It was also observed that some sera had the properties of two of the four types—viz., the standard anti-Rh along with either the 70% or the 30% agglutinin in addition. In America, Wiener (1941) had already found a serum giving only 70% of positives (mainly among Rh-positive bloods), and had named it anti-Rh_1 to distinguish it from the standard serum giving 85% positives. Later Wiener and Sonn obtained a serum that contained two agglutinins of unequal strength both of which acted on certain bloods, and by dilution they were able practically to eliminate the action of the weaker antibody and thus obtain a serum giving only 30% of positive reactions; this they named anti-Rh_2. Wiener had also studied sera containing the 85% agglutinin (standard anti-Rh_0) in good strength together with either (*a*) the 70% agglutinin or (*b*) the 30% agglutinin. After some vacillation these double agglutinin sera were finally called respectively anti-Rh_1 and anti-Rh_2 (Wiener, 1944a). It soon became clear that Wiener's 85%, 70%, and 30% sera were in fact the same three single types of agglutinin as were used by British workers, but Wiener did not at that time have the advantage of using a powerful serum acting on Rh_2 and Rh-negative (rh) elements (St = Hr).

By means of his sera Wiener (1944b) was able to subdivide Rh-positive bloods (i.e., those agglutinated by the 85% serum) into three subtypes, which he named Rh_1, Rh_2, and Rh, and also Rh-negative bloods into three subtypes—Rh′, Rh″, and rh. Further, he recognized that Rh_1 was closely related in its reactions to Rh′, and Rh_2 to Rh″. Race, Taylor, Cappell, and McFarlane (1944) had independently reached similar conclusions, and so, in view of the close concordance of our results with Wiener's, we accepted his terminology, with the minor modification of using Rh_0 for his Rh type. By the additional use of the powerful St serum we were able to detect most of the heterozygotes and thus to identify the genotypes of approximately 80% of persons. In addition, the St serum enabled us to discover a seventh variety of Rh (now called Rh) and later to predict the probable existence of an eighth very rare form (Rh_y). Recently a fifth type of single agglutinin serum has been found by Mourant (1945) in a male patient who had received repeated blood transfusions. This serum, like St, reacts with all Rh-negative bloods and with heterozygotes possessing the Rh-negative gene-complex, but it differs from St in failing to react with a proportion of the subtype Rh_2. This evidence points to the probability that the patient himself, and also others whose cells are not agglutinated by his serum, are homozygous Rh_2Rh_2.

Since the Rh factor is genetically determined, it follows that each individual possesses two factors (either or both of which may be a Rh type or rh). One is inherited from each parent, and the overlapping of their reactions makes it impossible in some cases to determine the genotype exactly. Some Rh types are common and others rare, and it is therefore customary to assign each person's genotype to the most common group having the given serological reactions, unless a study of the segregation of the genes in other members of the family enables a more exact allocation to be made. The terminology applied to the individual Rh subtypes and their behaviour with the four single agglutinin anti-Rh sera are set out in Table I: for comparison their reactions with guinea-pigs' anti-rhesus serum are given.

TABLE I.—*Human Single Agglutinin Sera*

Rh Subtypes	Guinea-pig Anti-rhesus Serum	85% (Anti-Rh_0)	80% (St: Anti-Hr)	30% (Anti-Rh″)	70% (Anti-Rh′)
R_1	+	+	−	−	+
R_2	+	+	+	+	−
R_0	+	+	+	−	−
R_z	+	+	−	+	+
R′	−	−	−	−	+
R″	−	−	+	+	−
R_y	•(−)	(−)	(−)	(+)	(+)
rh	−	−	+	−	−

•Reactions in brackets *predicted*.

Early Views on Rh_1 and Rh_2 as Additive Types

From the results with 85%, 70%, and 30% sera it would be an attractive supposition that the various Rh types are built up by the summation of two or more of the subtypes—e.g., Rh_1 might be regarded as $Rh_0 + Rh'$, and Rh_2 as $Rh_0 + Rh''$; while Rh_z could be regarded as $R_0 + R' + R''$. Wiener (1944a) made this suggestion and proposed that the descriptive terms Rh_0' and Rh_0'' should be used. This hypothesis had already been considered by Race, Taylor, and myself, and had been abandoned because the information yielded by St serum ruled out such a simple additive solution. Rh_1 is clearly St-negative, as is Rh′; but Rh_0 is quite certainly St-positive—a fact later confirmed by Wiener, Davidsohn, and Potter (1945) when they had the opportunity of studying the reactions of a powerful Hr (= St) serum on the American negro population, in whom the Rh_0 type is very frequent.

Although Wiener's analysis of the Rh genotypes was at first incomplete owing to lack of a powerful anti-Hr serum, and a serum of Mourant's type, his attempted synthesis of the complexities of the Rh subtypes (Wiener, 1944a) led him to alter the terminology which he had applied originally (Wiener, 1943) to the anti-Rh sera, and so to reverse the designations anti-Rh_1, anti-Rh′, and anti-Rh_2, anti-Rh″. I had already (1943) made this suggestion independently to Fisher and thereby influenced significantly the development of his analysis and synthesis of the Rh structure.

Fisher's Views on the Rh Structure

The various Rh subtypes cannot be satisfactorily explained by postulating a whole series of allelomorphs at a single locus on the chromosome. The common Rh types, Rh_1 and Rh_2, are not usually attributable to the presence of Rh_0 on one chromosome and Rh′ or Rh″ respectively on the other member of the pair. If Rh_1 were usually equal to genotype Rh_0Rh' and Rh_2 equal to Rh_0Rh'' the offspring of parents of these types would be expected to show separation of the genes, which as a rule they do not: nor is it sufficient to suppose that $Rh_1 = Rh_0 + Rh'$ at two adjacent loci on the same chromosome: Rh_0 reacts positively with St serum, whereas Rh′ and Rh_1 are negative with this reagent. Fisher (Race, 1944) devised a scheme which appeared to cover all the facts then known, but which also made four predictions, two of which have since then been verified—viz., the recognition of a further type of serum (Mourant's anti-e serum) and the identification of an additional type, Rh_z.

Fisher suggested that in each individual the Rh phenotype is determined by three closely linked pairs of allelomorphic genes, which he distinguished by the letters Cc, Dd, and Ee, and he supposed that the gene indicated by each of these six letters determined the presence of a distinctive antigen in the red cells. The triple gene-complexes thus give rise to eight theoretical Rh types by reason of the combination of elementary antigens with which they endow the cells. Seven of these combinations have been recognized by analysis of their reactions with the four antisera, while the eighth has not yet been found segregated in such a way that its individual reactions could be determined. The Rh locus is thus visualized as a strip of chromosome occupied by three closely linked genes. It is attractive to suppose that the rarer subtypes may have arisen by crossing-over during the formation of the gametes. Such a view might explain the great rarity of the R_y type, which would require for its formation crossing-over in persons of rare genotype, or possibly double crossing-over between the three closely linked genes. Fisher and Race (1946) have shown that in Great Britain the frequencies of the rare types R_0, R_z, R′, and R″ support such a hypothesis, but proof will be obtained only by statistical analysis of genotype studies in races of widely different Rh constitution.

When Fisher's scheme was first propounded, antisera corresponding to four of the six postulated elementary antigens were known, and it was suggested that sera with specificities corresponding to the other two components would probably be found. This prediction was partially fulfilled by Mourant's discovery of an irregular iso-agglutinin which acted upon all cells containing the antigenic products of the gene-complexes Rh_0, Rh_1, Rh′, and rh; while it failed to react with cells of type R_2R_2, R_2R'', and R_z. This agglutinin has therefore the specificities predicted for anti-e. It is noteworthy that, like the original St serum (anti-c), Mourant's serum gives weak or strong reactions accordingly as the cells contain one or two "e" components. The discovery of a serum with the predicted specificities is strong support for the view that Fisher's scheme is essentially correct.

According to Fisher's scheme the Cc loci may be occupied by CC, Cc, or cc, the C gene product being detected by anti-Rh′ serum (anti-C), while the c gene product is detected by St serum (anti-c). The anti-Hr sera of Levine and of Wiener detect the rh gene product because they, like St serum, act upon component c, as is shown by their positive reaction also with all Rh_2 cells. Race, McFarlane, and Cappell (1945) pointed out that the data given by Waller and Levine (1944) suggested that they were using two distinct kinds of anti-Hr serum, one of which corresponded with the British St serum, while the other, stated to give *negative* reactions with R_1R_2 cells, appeared to be anti-d. Levine (1945), however, acknowledged that a mistake had crept into the data in his paper with Waller and that the reaction with R_1R_2 cells should have read *positive* (not *negative* as originally stated). All the American anti-Hr sera therefore seem to have the same specificity and correspond exactly to the British St serum—i.e., anti-c. Anti-d serum still awaits recognition.*

* I am informed by Dr. Race that a serum containing anti-d agglutinin has been found by Diamond and Boyd, but details are not yet available.

Levine (1945) and Wiener (1945d) recognize that Hr is antithetical to Rh′ and suggest that the relationship is like that of M and N. Wiener (1945d, Table 12), while not admitting their existence, proposes that the terms Hr′, Hr_0, and Hr″ be used if the extension of knowledge requires that Hr be subdivided, the term Hr′ being there applied to antigen which was originally called Hr. It seems unnecessary to employ two sets of symbols for the same thing, and in my opinion the term "Hr factor" should now be abandoned as no longer serving any useful purpose. The continued use of this symbol suggests that the Hr factor exists independently of the Rh factor, whereas the position is that Wiener's hypothetical three kinds of Hr factor are merely the three elementary antigens of the Rh-negative gene product, designated by Fisher c, d, and e. Wiener's scheme would mean the employment of two sets of symbols whose interrelationships would not be apparent or else the use of a very cumbersome terminology. Thus type Rh_1 could be represented as Rh_0' or as Hr″, while, by analogy, type rh would be Hr'_0". Fisher's C D E c d e terminology is neater and gives a greater revelation of the constitution of the Rh type.

Extension of Fisher's Scheme

Recent observations (Callender, Race, and Paykoç, 1945) show that in reality Fisher's hypothesis is an oversimplification, since the category of Rh types has had to be further extended (Callender and Race, 1946; in press).

During the investigation of a series of hitherto unrecognized antibodies in the serum of a young woman who had received repeated transfusions it was proved that one of the new antibodies (anti-Willis) reacted with a second allelomorph at the Cc locus, and this has been tentatively named C_w. Further work has shown that almost 50% of anti-Rh′ sera (i.e., anti-C) react with both C and C_w (e.g., the original anti-Rh′ serum of Race, Taylor, Cappell, and McFarlane, 1944), whereas the others react only with C. The only pure anti-C_w serum so far recorded is that of Callender, Race, and Paykoç (1945). Since the C component occurs in all Rh_1 and Rh′ cells, these types can be subdivided into those possessing C and those with C_w; and the list of Rh genotypes is thus further extended. Race, Mourant, and Callender (1946) estimate that about 2% of persons are of the C_w type; therefore Rh_1Rh_1 individuals may possess two C genes or two C_w genes or one of each, the latter being of genotype C_wDe/CDe.

As is to be expected, anti-Rh_1 sera containing the two agglutinins anti-D and anti-C are also divisible into two types—those whose anti-C component is pure anti-C, and those in which it reacts with both C and C_w. Since C_w is relatively rare it is not clear why anti-C_w should be so often associated with anti-C; and it remains to be proved whether anti-C_w is produced only as a result of iso-immunization by C_w or whether it is produced in a non-specific way as a sort of coagglutinin by the allele C.

It is likely that these antigenic differences are concerned in some of the minor discrepancies which have been observed in the behaviour of different human antisera, and that such differences are responsible for some at least of Wiener's "intermediate" Rh genes. Further work may reveal the significance of occasional discrepancies in the reaction of anti-Rh sera now thought to be identical, and there may be multiple alleles at both the D and E loci as well as at the C locus. Clear proof of this, however, is at present lacking owing to difficulty in obtaining repeated samples of blood from the required cases, but a number of suggestive observations have been made, particularly with regard to the Ee locus.†

Nomenclature of the Anti-Rh Sera

As has been pointed out, much confusion exists about the terminology applied to the various anti-Rh sera—a state of affairs which is not simplified by the fact that some writers in this country have continued to use Wiener's older terminology while others have adopted his newer nomenclature. Stratton (1943) refers to the 70% single agglutinin serum as anti-Rh_1, and calls the double agglutinin serum (87%) anti-Rh′, according to the terminology which Wiener (1944a) and I (1944) discarded because it fails to designate the antisera in accordance

† Stratton (1946) has since reported another allele at the Dd locus.

with the antigens with which they react. Fisher (Race, 1944) proposed to name the antisera by the Greek letters corresponding to the elementary antigens of his hypothesis, but this method is troublesome to many workers who are not familiar with the Greek characters. As I originally proposed (Cappell, 1944), the simplest terminology is to call the various sera anti-C, anti-D, anti-E, etc., according to the elementary antigens of the Rh complex with which they react, and this system has the further merit that it is easily adaptable as knowledge advances. It has been approved and adopted by Coombs, Mourant, and Race (1945a, 1945b) and by Race, Mourant, and Callender (1946), and the latter writers have already extended it, as required by the finding of the new allelomorph at the Cc locus.

Murray (1944a, 1944b) proposed to give each of the sera a number and to apply the numbers subscript to the letters Rh in order to indicate the antigenic structure of the type under consideration. Thus: anti-Rh′ (anti-C)=serum 1; anti-Rh_0 (anti-D)=serum 2; anti-Rh_1 (anti-C+D)=serum 1 2; anti-Rh″ (anti-E)=serum 3; anti-Rh_2 (anti-D+E)=serum 2 3; St serum (anti-c=anti-Hr_1)=serum 4.

These proposals have not found general acceptance and do not appear to offer any advantage over the terminology proposed above. While new types of antisera could of course be designated by additional numbers, their relationships to those previously recognized could not be so easily displayed as in the above system—e.g., the modification of dividing anti-C into anti-C and anti-C_w.

The alternative nomenclatures of the sera are given in Table II.

antibodies of both anti-D and anti-C type. It is now realized also that the few who appear to have only anti-C agglutinins (70% type) have in fact also been immunized against D. When a Rh-negative person (rhrh) becomes immunized against Rh_0 blood (cDE), however, the antibodies are usually of the anti-D type alone; although sera containing both anti-D and anti-E do occasionally occur, they are rare. It should be emphasized that the D antigen is the only really common and important cause of iso-immunization either in intra-group transfusion reactions or in pregnancy; accordingly, those who lack it may become immunized against it in spite of the presence of other Rh components, C or E, in their genetic constitution. I have previously recorded (1944) the iso-immunization of a mother of type Rh′rh by children of type Rh_1rh; and similar cases have been reported by Simmons and Kelsall (1945) and by Wiener (1945b).

"Incomplete" or Blocking Antibodies

Most workers have been struck by the lack of correspondence between the severity of haemolytic disease in the foetus and the titre of anti-Rh agglutinins in the maternal blood. In some of the most severe cases with repeated obstetric disasters the mother's serum yields only a weak or doubtful agglutination with known Rh-positive cells. This apparent discrepancy has been explained by the observations of Race (1944) and of Wiener (1944c) that, in addition to agglutinating antibodies, maternal sera may contain other antibodies which unite with the receptors of antigen D in the red cells and prevent agglutination by anti-D agglutinating serum. Such interfering substances have been termed "incomplete" or "blocking" antibodies: they seem to correspond to the old term "agglutinoids." The other Rh antigen receptors—e.g., C or E—are not affected, and the "blocked" cells are thus susceptible to agglutination by sera which act specifically on their unblocked receptors; for example, blocked Rh_1 cells behave like Rh′ cells and are agglutinated by anti-C serum; while blocked Rh_2 cells behave like Rh″ cells and are agglutinated by anti-E serum.

Coombs, Mourant, and Race (1945a, 1945b) later showed that the union of the blocking antibodies with Rh-positive cells could be demonstrated by washing treated cells free from serum and then subjecting them to the action of anti-human-globulin serum, when prompt agglutination took place. The anti-globulin serum reinforces the action of the maternal antibody presumably by combining with the natural antibody-globulin adsorbed on the surface of the red cells. By this means a very weak antibody may be detected even when present in an amount insufficient by itself to give a distinct reaction. Coombs, Mourant, and Race (1946) refer to this as the *indirect* test, as compared with the *direct* test when the anti-human-globulin serum is added directly to washed cells in order to detect *in vivo* sensitization (see later).

Diamond and Abelson (1945) have pointed out that many of these difficulties can be removed by avoiding the use of saline for diluting the red-cell serum mixtures to be tested. If full-strength maternal serum is mixed with whole blood or

TABLE II

Human Iso-Antisera (Alternative Designations)				Rh Types (Elementary Antigen Structure)											
Cappell	Wiener	Fisher	Murray	R_0 cDe	r cde	R_1 cDE	R″ cdE	R_1 CDe	R_1 C_wDe	R′ Cde	R′ $C_w$de	R_2 CDE	R_2 C_wDE	R_y CdE	R_y C_wdE
Anti-C_w				−	−	−	−	−	+	−	+	−	+	(−)	(+)
Anti-C+C_w	Anti-Rh′	Γ	Serum 1	−	−	−	−	+	+	+	+	+	+	(+)	(+)
Anti-C				−	−	−	−	+	−	+	−	+	−	(+)	(−)
Anti-C+C_w+D	Anti-Rh_1	Γ + Δ	Serum 1 2	+	−	+	−	+	+	+	+	+	+	(+)	(+)
Anti-C+D				+	−	+	−	+	+	+	−	+	+	(+)	(−)
Anti-D	Anti-Rh_0	Δ	Serum 2	+	−	+	−	+	+	−	−	+	+	(−)	(−)
Anti-D+E	Anti-Rh_2	Δ + H	Serum 2 3	+	−	+	+	+	+	−	−	+	+	(+)	(+)
Anti-E	Anti-Rh″	H	Serum 3	−	−	+	+	−	−	−	−	+	+	(+)	(+)
Anti-c	St anti-Hr	γ	Serum 4	+	+	+	+	−	−	−	−	−	−	(−)	(−)
Anti-d		δ	Serum 5	(−)	(+)	(−)	(+)	(−)	(−)	(+)	(+)	(−)	(−)	(+)	(+)
Anti-e		η	Serum 6	+	+	−	−	+	+	+	+	−	−	−	−

Practical Consequences of the Subtypes

Table I shows that among the eight subtypes of Rh four react positively with the guinea-pig immune anti-Rh serum and that only one of the human iso-immune sera gives the same reactions—viz., the 85% serum (anti-Rh_0). Many workers have included within the classification of Rh-positive all human cells which react not only with 85% serum but also with 70% and 30% sera, but in my opinion this is confusing, and indeed dangerous. It would be much better to restrict the term "Rh-positive" to those cells which react positively with 85% serum—i.e., those which contain antigen D. As I have pointed out already (Cappell, 1945), the inclusion of the subtypes R′ and R″ among Rh-positives constitutes a formidable danger for such individuals, since owing to their lacking antigen D they will develop anti-D just as readily as do Rh-negative persons. If they are reckoned as Rh positive they are liable to be given a transfusion of a true Rh-positive blood, which is incompatible, and this may lead to tragic results if there happens to be anti-D in their serum. On the other hand, although the subtypes R′ and R″ are both fairly rare (about 1%) it would be wise to eliminate them from the panel of Rh-negative bloods supplied for transfusion, lest they be administered to immunized Rh-negative persons in whose sera there are antibodies of the corresponding type. This danger is much greater with Rh′ blood (Cde/cde) because about one-half of the women who become iso-immunized by the Rh_1 gene-complex (CDe) develop

with a cell suspension prepared by dilution in their own serum (Wiener, 1945d) or in a 30% solution of serum albumin, either human or bovine (Diamond and Denton, 1945), rapid agglutination of Rh-positive cells is brought about even when blocking antibodies are present in such amount as to inhibit completely agglutination by the ordinary method. Diamond and Abelson state that the tests performed on an open slide with albumin solution as a diluent are more rapid and accurate than by any other method, over 99% of sera from Rh-negative mothers of babies affected with haemolytic disease giving positive evidence of Rh antibodies. Albumin solutions of not less than 20% concentration are free from troublesome rouleaux formation, but not all samples of concentrated albumin give equally satisfactory results (Race, Stanbury, personal communication). Rouleaux formation is, however, very troublesome when human serum or plasma is used as the diluent for the cell-serum mixtures, both in the slide test and when performed in tubes as described by Wiener (1945d) under the name of "the conglutination test." When the maternal serum contains only a very weak antibody the results of this test may be equivocal and difficult to distinguish from rouleaux formation, and it is in just such cases that especial difficulty in the interpretation of the other standard tests is encountered. When serum containing only blocking antibodies is incubated with appropriate red cells in saline dilutions the absence of agglutination is attributed by Wiener to the dissociation of a hypothetical protein complex, which he has called "conglutinin," on which the linkage of blocking antibody and red-cell antigen is said to depend. "Conglutinin," in Wiener's sense, is a heat-stable protein, and does not seem to bear any relationship to the complement-like substance to which the name was originally applied (Muir and Browning, 1906). Wiener regards this discovery as the solution of most of the remaining mysteries of the mode of action of Rh antibodies, and has attempted to explain the rapid onset of symptoms after birth as due to the sudden development of "conglutinin" in the postnatal plasma. When the mother's serum is rich in blocking antibodies, however, the foetus often fails to reach full term and is commonly stillborn prematurely, often in a macerated condition with severe erythroblastosis. Miscarriage of a hydropic foetus may occur as early as the fifth month, and it is therefore impossible to accept the view that the interaction of maternal antibodies and foetal cells requires the intermediary action of a hypothetical protein appearing only at or near term.

It is important to note that the open slide test cannot be used alone as a means of analysing the nature of the antibodies present in a serum, because it fails to distinguish between the effects of agglutinating and blocking antibodies. Accordingly, an anti-C serum from an Rh-negative person will by this technique give positive reactions not only with R_1 (CDe) and R′ (Cde) cells but with R_0 (cDe) and R_2 (cDE) cells, owing to its content of blocking anti-D, on which its specificity usually depends. For genotype studies and for the analysis of the constituent antibodies the standard test-tube method must be employed, using appropriate Rh types of cells in saline dilutions.

Boorman, Dodd, and Morgan (1945) state that the anti-Rh titre of the maternal serum may be estimated by the tube method, AB serum or plasma being used as the diluent; the results show a much higher titre than in the original saline dilution methods of Wiener (1941) and of Taylor (1943), but among human sera this augmentation of titre is observed only with *iso-immune* sera—e.g., *immune* anti-A and anti-B or anti-Rh—but not with the natural iso-agglutinins of human sera. This method may therefore serve to distinguish the natural iso-agglutinins from those of immune origin. The adverse effect of saline dilution on anti-Rh sera probably explains why in so many cases of haemolytic disease the maternal serum reacts strongly when mixed with an equal volume of 2% cell suspension but fails to react when diluted 1 in 2 or more, for the actual serum concentration of the mixture is then reduced to 1 in 4 or less. A truer index of the amount of anti-Rh present is obtained by carrying out the titration in serum as Boorman, Dodd, and Morgan (1945) suggest.

"Blocking" antibodies have usually the same specificity as anti-Rh_0 serum—i.e., they act upon antigen D—but they appear to have a greater avidity than the anti-D agglutinins, so that in a mixture they are able to unite with the D receptors first and thus prevent agglutination. Examples of blocking antibodies with other specificities have been reported by Callender and Paykoç (1945) with the specificity of anti-c (St=anti-Hr), and by Diamond and Abelson (1945) of types anti-Rh_0 (=D), anti-Rh′ (=C), and anti-Rh″ (=E).

In some cases of haemolytic disease the cells of the newborn Rh-positive child may be so saturated with blocking antibody that they fail to react with anti-Rh_0 (anti-D serum), and may thus appear to be Rh-negative; they still react, however, with anti-Rh′ (anti-C) serum if of Rh_1 type, or with anti-Rh″ (anti-E) serum if of type Rh_2. If recovery occurs the true genotype will be detectable when the child is several months old, after the effects of the maternal antibodies have disappeared. (See Cases 7 and 8.)

Agglutinating antibodies, even when abundant in the maternal blood, can rarely be demonstrated in the foetal serum, but Baar (1945) has shown that blocking antibodies are often present, and can be detected by their capacity to block the "D" receptors of suitable red cells. In view of the alleged greater avidity of "blocking" antibodies, their persistence in the free state in the foetal serum is surprising. Baar has not claimed that in all such cases the red cell receptors of the foetus are fully saturated with blocking antibodies, so that they appear to be Rh-negative, as in Cases 7 and 8 of this series, but this phenomenon was present in some (personal communication).

By means of the rabbit anti-human-globulin serum Coombs, Mourant, and Race (1946) have shown that in all cases of haemolytic disease tested by this method the foetal erythrocytes are found to be sensitized *in vivo* and when washed free from plasma are immediately agglutinated by the anti-human-globulin serum, presumably owing to the presence of absorbed antibody-globulin on the red cell membrane. They refer to this as the *direct* test, and have shown that the cells of an affected foetus which appeared to be Rh-negative (Rh′rh) were highly sensitized owing to the blocking of the D receptors; after recovery the infant's cells were found to be Rh-positive and of genotype Rh_1rh. Had the direct Coombs test been available when we encountered Case 7 (below) it would have enabled us to detect sensitization of the apparently Rh-negative foetal cells, and would thus have furnished additional proof that this child belonged to genotype Rh_0rh (cDe/cde), like some of the sibs.

Blocking antibodies may appear in the maternal serum instead of agglutinating antibodies, but in some cases they develop later; thus irregular iso-agglutinins may be detected in the second trimester of pregnancy, but may be absent at term; nevertheless the foetus will be severely affected. In other cases anti-Rh agglutinins may be present in fair amount during the first one or two pregnancies in which the foetus is affected, but in subsequent pregnancies may be replaced by blocking antibodies. Thus estimation of the anti-Rh titre in pregnancy is a warning only if due attention is paid to the presence of blocking antibodies as well as those of agglutinating type.

It is now recognized that the development of blocking antibodies is a bad prognostic sign and that it is usually followed by the most severe form of foetal disease—e.g., hydrops foetalis.

[Part II, with list of references, will appear next week]

In an address at the annual meeting of the Mental Hospitals Association held in the London Guildhall, Dr. Thomas Beaton, physician-superintendent of St. James Hospital, Portsmouth, said that the adjustment of mental health services to the National Health Service would in many ways be easy as compared with general medicine and surgery. Apart from a few registered hospitals and similar institutions, the mental hospitals service, he said, was already organized nationally. Though there had been local management and development in the different areas, yet under the supervision of the Board of Control, the co-operation of such bodies as the Royal Medico-Psychological Association, the Mental Hospitals Association, and the Union of Mental Hospital and Institutional Workers had brought about a standardization on a national basis far in advance of anything in existence in general medicine and surgery, in fact the new National Health Service could learn much from the experience of the administration of mental health.

THE RECEPTIVITY OF CERVICAL MUCUS TO SPERMATOZOA

BY

MARY BARTON, M.B., B.S.

First Assistant, Fertility Clinic, Royal Free Hospital

AND

B. P. WIESNER, D.Sc.

Consulting Biologist, Royal Northern Hospital

In infecund couples the post-coital (Sims) test often shows that the spermatozoa do not penetrate the cervical canal, or, having penetrated, do not survive therein. Such defective fecundation may be due to seminal deficiency or to abnormal cervical conditions, or both (cf. Miller and Kurzrok, 1932; Lane-Roberts *et al.*, 1939; Green-Armytage, 1943; Siegler, 1944; Barton and Wiesner, 1944, 1945).

Experience has shown that cervical faults are not always apparent. We have seen many cases where spermatozoa of undoubted fecundity (donor's semen) did not penetrate or did not survive in cervical mucus which by all accepted signs (profuse, cell-poor, transparent secretion) presented the fecund appearance associated with the ovulatory phase. It was no longer possible, therefore, in the investigation of a sterile woman, to assume that the cervical mucus was receptive unless the post-coital test was positive—i.e., showed motile sperms in the cervix. In cases of impaired invasion it became necessary to assess the receptivity of the cervical mucus before apportioning responsibility between husband and wife. We therefore attempted to devise a method for testing directly the receptivity of the mucus and the invasive power of the spermatozoa.

Biological Basis of the Invasion Test in Women

During the ovulatory phase a cascade of clear mucus descends from the gaping external os into the vagina. After intercourse the surface of this cascade is in intimate contact with the seminal pool; but the two colloids—semen and cervical mucus—do not mix: they maintain their separate identities. The relative immiscibility of semen and cervical mucus is so pronounced that a drop of one can be centrifuged past a portion of the other. In accordance with the general behaviour of immiscible colloids or liquids, an interface is formed where semen and mucus are in contact with each other. The interface between two such colloids is endowed with properties, such as tension, corresponding with those of surfaces in general. It may be likened to an invisible membrane, and the passage of small particles across such an interface may require an appreciable amount of energy. Suitable *in vitro* preparations, in which fecund semen is brought into contact with healthy cervical mucus, reveal the significance of this interface; for most spermatozoa, on approaching the interface, are retarded or prevented from penetrating. On the other hand, many normal (virile) spermatozoa pass through the interface and survive in the cervical mucus for hours or days. Generally such contact preparations can be used as models of the individual conditions prevailing at the cervical entrance after intercourse or insemination.

Technique in Female Invasion Test

A perfectly clean and grease-free cover-slip is ringed with vaseline, leaving four narrow gaps. The slip is placed on white paper or a porcelain slab, ringed side up. The cervix is exposed during the presumptive ovulatory phase by a dry unlubricated speculum under good illumination. The protruding cervical mucus cascade is now removed by gentle swabbing with dry cotton-wool, without pressure upon the external os. A small portion of the cascade then still adjacent to the external os is used for the routine test. It is best removed by inserting the tip of a long forceps, opening the blades to a distance of about 3 mm. and closing them again. Thereby the tip of the blades is charged with the small portion of mucus required for the test. When the blades are gently separated above a clean grease-free slide the curious fibrosity (thread-forming capacity) of ovulatory mucus results in the formation of a strand, which is deposited on the slide. The slide is immediately inverted and pressed lightly against the ringed cover-slip. Thus a capillary chamber, charged with a film of cervical mucus 2–5 mm. wide and about 50μ deep, is obtained. The chamber must now be charged with semen of established fecundity, proved by a recent conception. We use fresh specimens (aged 1 to 6 hours) supplied for, and employed in, A.I.D. (artificial insemination with donated semen). A platinum loop is charged with semen and immediately brought into contact with one of the gaps in the ring. The semen flows by capillary action underneath the cover-slip. By repeating this process the space between the mucus and the edge of the slip is filled. The air escapes through the gaps in the vaseline ring, thus ensuring contact between mucus and semen, without the formation of air bubbles or interstices. The gaps are now sealed with melted vaseline, which must not be hot lest the spermatozoa be damaged. The sealed slide may be kept at room temperature, and is examined on sealing and thereafter at intervals of not more than two hours each. Examination is preferably carried out with a binocular microscope, fitted with a mechanical stage and graduated fine adjustment, so that selected fields and planes can be identified in successive inspections. For quantitative determinations, such as are required for specific research problems, and to acquire familiarity with normal standards, a counting ring has been devised. It is made from a circular cover-slip on which a circle 3 mm. in diameter is drawn with glass ink. This slip is then placed on the diaphragm of the eye-piece; on viewing the slide a circle is thus marked out. The number of spermatozoa leaving or entering the circle per minute is counted. This count directly relates to the density of motile spermatozoa present, and if repeated at intervals yields a measure of invasion and survival. Other specific appliances, such as constant temperature stages, incubators, etc., are not necessary in clinical work; and for routine purposes nothing more than really clean slides, a platinum loop, a microscope, and some patience is required.

Results: Normal Mucus

In a number of cases cervical mucus was removed just before an insemination which resulted in conception; observations in these cases, and in other instances of undoubted fecundity, may serve as standards to be described first. In these cases the sealed preparation has a striking and characteristic appearance. Even macroscopic inspection shows clearly the sharply defined boundary line between the water-clear mucus and the opaque semen. This boundary, far from being obliterated by diffusion of semen into the mucus, grows more pronounced on standing Microscopically, it is again this boundary between semen and mucus which dominates the picture. At this interface the spermatozoa tend to congregate in dense masses; only a small proportion of highly active sperms pass into the cervical mucus, some almost instantaneously, so that even a few seconds after the slide has been charged sperms are found within the mucus. The subsequent fate of these sperms varies greatly. Many swim about at high speed and, since collisions are less frequent than in densely populated semen, their path is less devious; but it appears to be random, and many sperms pass back into the semen. Other spermatozoa that have also passed through the interface continue to "whip" their tails but fail to show any forward movement. These "oscillatory" sperms may be found anywhere within the mucus, but are most numerous in the field adjacent to the boundary. Yet other sperms, strong enough to break through the interfacial tension, soon lose all motility. Thus a gradient develops; the total density of sperms decreases, but the proportion of motile ones increases, with distance from the interface (see Fig. 1). For the first few hours after the slide has been set up the invasion of the mucus continues. A larger number of sperms invade from than return to the semen, and thus the density of sperms within the mucus increases gradually. After varying periods (2 to 5 hours) a point of culmination is reached. At this stage the seminal fluid contains comparatively few motile spermatozoa, since it has been impoverished by continuous emigration of the most active ones. At the interface the seminal fluid is bounded by a dense felt of spermatozoa, too weak to penetrate the interface, and forming, as they assemble, a growing obstacle to the more active ones on either side of the boundary. On the cervical side a belt of oscillatory or immotile sperms is seen near the interface, the more distant mucus being uniformly

invaded by motile sperms. This condition characterizes the "positive" invasion test.

The spermatozoa may continue to live on either side of the interface for 12 to 48 hours at room temperature in such slides; they never survive for 4 to 5 days as they do in the living cervix. The actual period of survival depends on a variety of factors of no present clinical interest. Death of the sperms is often preceded by angulation of the head.

Observations on invasion slides bear upon certain problems of the physiology of fecundation: for instance, there is no evidence that the cervical mucus "attracts" the spermatozoa; the gradually increasing density of the spermatozoa is adequately explained by chance movements—in fact, the interface may be likened to a biological membrane, and the spermatozoa to particles endowed with kinetic energy but moving at random. Though the assembly of sperms at the interface might suggest positive attraction by the mucus, it is more likely that the felt consists of weaklings unable to extricate themselves from the conditions in the boundary phase; for similar congregations can be seen at interfaces between air bubbles and semen, in artificial emulsions of semen, etc. Inanimate particles may congregate in a similar manner (Rideal, 1930).

Sources of Error

It was thought possible that the use of pure semen might be inadvisable, for in human fecundation *in vivo* a pool forms from the semi-liquid contents of the vagina and the ejaculate, and fecundation takes place from this pool; but by using portions of fresh seminal pools in invasion tests the results were not different from those observed with semen itself. More important are errors arising from misinterpretations. Owing to variations in the wetting of the glass slide the cervical mucus may form a film with an irregular outline and narrow indentations, and the seminal fluid is liable to penetrate these crevices (Fig. 2). The resulting intrusion suggests a spearhead of sperms—a veritable "phalanx" or "caravan" penetrating the mucus. Miller and Kurzrok suggested that these intrusions are produced by the mucolytic action of semen and represent the initial stages of sperm-invasion. But careful observation and staining of the semen with carmine show that the phalanges never transgress the boundaries of the semen (revealed by the dye), that no diffusion takes place, and that the sperms *invade individually all along the interface*. In fact, invasion from the phalanges is retarded, probably because of the increased tension in the crevices, which is shown by the alignment of sperms parallel to the closely approximated interfaces between which they are caught.

Results: Abnormal Mucus

In many cases of undoubted female infecundity—e.g., in some women who fail to conceive after repeated A.I.D.—the invasion test is "negative." In such cases the characteristic interface is formed and persists as usual; but the fate of the spermatozoa varies greatly. Neglecting minor deviations from the norm, six fairly definite types of mucus may be distinguished. These are:

1. Spermatozoa pass readily through the interface and penetrate the whole depth of the mucous film. However, they lose motility within 10 to 60 minutes, though some oscillate for longer periods.

2. Spermatozoa pass readily through the interface, but, having invaded to a shallow depth (less than 0.2 mm.), they lose motility, though oscillation may continue for some hours. This type of mucus characteristically shows a reasonably dense invasion limited to the boundary region.

3. Spermatozoa pass through the interface, but lose motility and rapidly cease even to oscillate in the boundary region.

4. Spermatozoa fail to penetrate the mucus; they congregate at the interface, forming the typical felt. Movement along the semen side of the interface may continue for many hours.

5. In rare cases the mucus not only does not admit spermatozoa but appears to affect the boundary region of the semen: for the spermatozoa die soon after their arrival at the interface.

6. In some infecund women the cervix is comparatively "dry"; it yields only small quantities of rapidly drying mucus unsuitable for the test.

These types are, of course, not sharply distinct from each other; thus some specimens of mucus may be virtually non-invadable (type 4), though isolated sperms may penetrate (Fig. 3). Allowing for such minor variations, the types are not difficult to distinguish after some practice.

Three factors seem to determine the suitability of cervical mucus for fecundation: first, the capacity to allow true (forward) motility of spermatozoa; secondly, the capacity to sustain sperm life, as shown by oscillation and/or forward motility for extended periods; thirdly, the invadability of the mucus. These factors may of course reflect variations involving few or many different physico-chemical properties of the mucus.

Clinical Interpretations of Results

The invasion test was carried out in numerous instances prior to A.I.D., the latter being followed by a Sims test. This series of observations made it possible to relate the results of the test to conditions *in vivo*. It showed that a positive invasion test almost invariably corresponds to a satisfactory Sims test, and that, conversely, the latter reveals inadequate cervical invasion in cases where the invasion test shows defective mucus. Clinical experience thus suggests the interpretation summarized in the accompanying Table, which takes into account both cases of A.I.D. and post-coital tests proper.

Table Summarizing Results

Properties of Mucus *in vitro*			Sims Test*	Fecundity
Invadability	Sustaining Capacity	Motility Factor		
Present	Present	Present	Deep invasion with good survival of sperms	Present
"	"	Impaired	Many oscillatory sperms in cervix but few, if any, motile ones	Impaired
"	Impaired	—	Immotile sperms in cervix; often no invasion of isthmus	Absent
Impaired	—	—	Cervix not invaded	"

Sustaining capacity relates to the capacity of the mucus to maintain the life though not necessarily the forward motility of sperms.

* The term "Sims test" applies equally to the post-coital examination of the cervix and to the examination after insemination.

Receptivity of Cervical Mucus in Relation to Appearance and Other Properties

The normal cyclical changes of cervical mucus are well known and have been studied by objective methods (e.g., measurement of recoil; changes in volume and water content: cf. Clift, 1945; Viergiver and Pommerenke, 1946). Hence the determination of physical signs, such as the thread-forming capacity of the ovulatory mucus, might suggest itself in place of the invasion test. As already indicated, our experience has shown that the correspondence between manifest physical signs and biological characteristics is inconstant. Clear elastic mucus ("glaire filante") has often given negative results in the invasion test. Thus in cases of manifest chronic cervicitis the mucus may temporarily clear during the ovulatory phase but remain biologically defective. The receptivity of the cervical mucus depends evidently on intimate structure and possibly on chemical factors which are not wholly reflected by the comparatively gross characteristics revealed to the eye or measured by present physical methods.

Frequency of Cervical Dysfunction

In 13 out of 21 women aged less than 35 years who failed to conceive after A.I.D. repeated for three months or longer, cervical invasion was impaired even though other known infecundity factors had been ruled out by the usual tests. Again, taking 50 consecutive cases investigated for sterility in which the Sims test was negative, unsatisfactory invasion tests were obtained in 14 cases. While it is impossible to estimate precisely, at this stage, the frequency of cervical dysfunction, it appears to be common even in the absence of endocervicitis (cf. also Palmer and Palmer, 1945).

Investigation and Therapy

Where the invasion test has given a negative result investigation of the possible causes must be instituted. According to our experience, briefly reviewed below, this task requires that three basic facts concerning the biology of the cervix should be borne in mind. First, that impaired cervical function reflects only, in many cases, general debility with or without specific

disturbances (such as chronic duodenal ulcer, hypochromic anaemia, chronic infective sinusitis, pyelitis). Infection, if present, may have attained a chronic subclinical state yet affect cervical function; this applies particularly to infections of the urinary tract. In many women the cervical secretion is so susceptible to adverse systemic factors that seemingly insignificant ailments must be given due consideration in the investigation. Secondly, adequate cervical secretion depends on oestrogenic secretion (cf. Schroeder, 1928; Wollner, 1936; Barton and Wiesner, 1945). This may be deficient; but in many women with impaired cervical function no general signs of oestrogenic deficiency are present (e.g., hypoplasia); in such cases the deficiency may be caused by a raised cervical threshold to oestrogens, resulting in a decreased rate of mucous flow. Thirdly, the cervix itself may be the seat of an infective process. In many cases of cervical infection the classical features of inflammation are absent, though routine methods may demonstrate the presence of pathogenic organisms.*

Clinical experience indicates that the impairment of oestrogenic secretion or of cervical reaction to oestrogens may be caused by general factors or infective processes. In other respects, too, the various factors controlling cervical function, and thereby fecundity, are interlinked. In view of the importance of all these factors the proper investigation of cervical impairment involves a wide field of clinical procedure and access to the appropriate expert opinion.

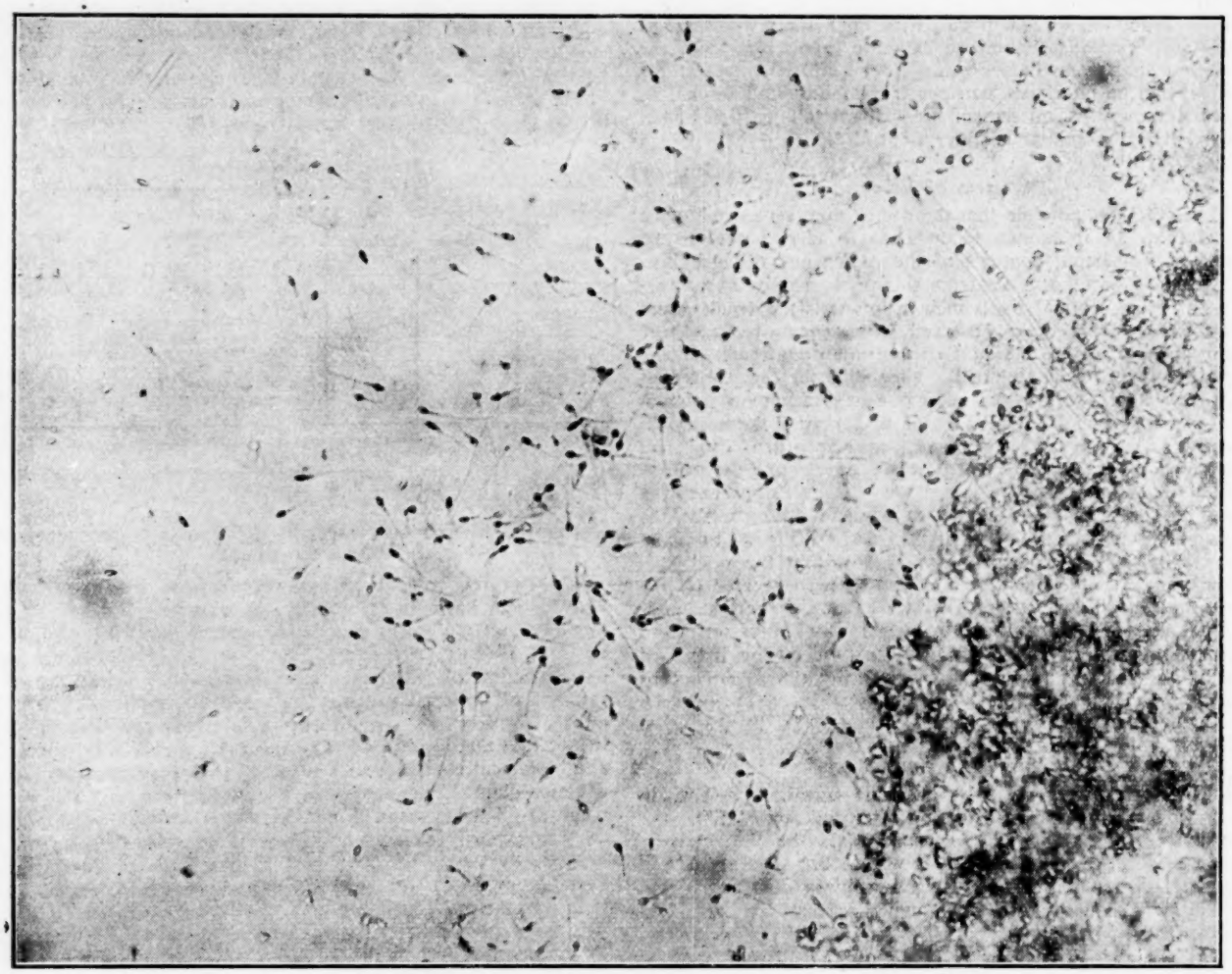


FIG. 1.—Invasion of receptive ovulatory mucus by spermatozoa (fecund semen). Photomicrograph of unstained live specimen. The interface crosses the field above the arrow on the margin. Note decrease in density of invaders with distance from interface. Mag. ×320; instantaneous exposure. Specimen 12 hours old.

Specific Therapeutic Measures

1. The administration of oestrone has been found useful in nearly all cases of defective invasion whether other measures were required or not. It was usually given in the form of crystalline suspensions (2 to 4 injections of 1.5 mg. each, during the first half of the cycle). No contraindications to this procedure have been found, though it may delay ovulation by a few days. The increased flow of cervical mucus evoked by oestrone appears to assist any concomitant measures; in some cases no other treatment is required. In the presence of uncomplicated erosions the local administration of oestrone, applied in pessary form, often results in full epithelization and improved cervical function. The pessaries are applied every other evening throughout the cycle and the patient is instructed to douche with warm water on the following morning. With the usual pessaries no effect upon the temperature cycle has been observed.

2. In view of the established efficacy of sulphonamide therapy in cervicitis of gonococcal origin a series of cases of cervicitis of non-gonococcal origin were treated similarly. Sulphonamides were administered orally whether or not other measures (such as cautery or antiseptic applications) were instituted. After initial experiences a number of cases were treated solely with sulphonamides, given orally. The results were to us startling. In numerous instances in which a purulent cervical mucus plug had persisted for years or had recurred after cautery or other measures the cervical mucus assumed normal

* Material for cultures should be taken with the platinum loop and planted immediately upon blood agar. Both aerobic and anaerobic methods should be employed. Incubation should if necessary be prolonged for 48 hours, since the initial growth of organisms obtained from the endocervix or the cervical surface may be inhibited.

appearance, permitted sperm invasion and survival, and pregnancy resulted.

Where cervical cultures have demonstrated a specific pathogenic organism (e.g., *B. coli*) the choice of sulphonamide may be dictated. In many cases with a purulent plug in which infection had to be presumed sulphadiazine was employed, and it should be recorded that comparatively small doses often proved effective (3 g. daily for five days, no dose being taken during the night; repeat after a 5-days break. Six pints of bland fluid daily while taking the tablets, but no alkaline adjuncts or changes in diet). With this procedure no nausea or other complications were recorded, nor was the normal routine of the patient disturbed. The success of mild sulphonamide therapy seems to us to justify its employment before recourse is had to intensive treatment or other specific measures such as autogenous vaccines, penicillin, etc.

French authors (Palmer and Palmer, 1945) record similar observations. They not only state that chronic endocervicitis is, directly or indirectly, the most common cause of female sterility but also that sulphonamide therapy is successful in about 80% of these cases, leaving a residue of only 20% needing surgical attention.

It may be added that in any woman of child-bearing age in whom surgical measures are contemplated the need for conserving the mucous matrix should be borne in mind. In our experience the milder measures, such as sulphonamide packs, glycerin drains, diathermy, etc., should be tried before any measure involving loss of tissue (e.g., conization). We have seen patients in whom infective processes were effectively dealt with by radical measures at the cost of permanent impairment of secretory function and fecundity.

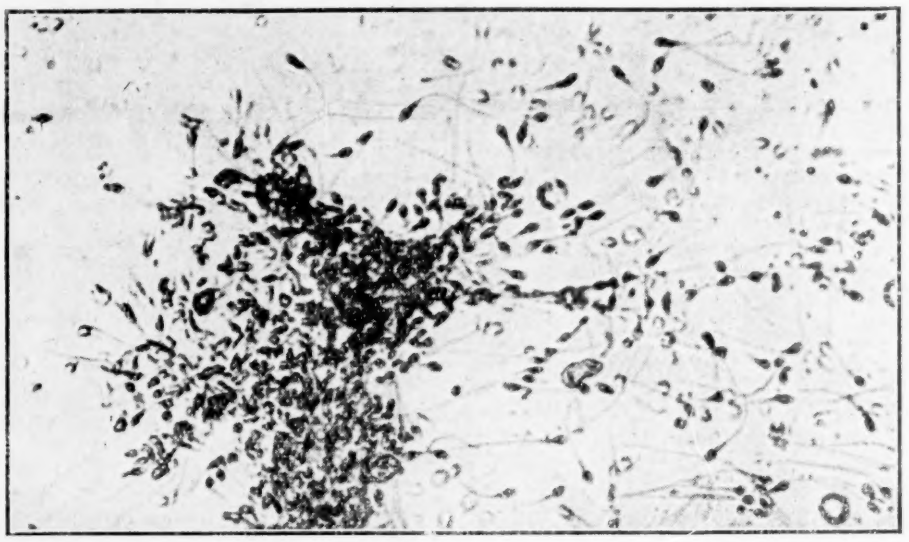


FIG. 2.—Formation of phalanx in negative test (fecund semen). The spermatozoa have penetrated into an interstice between mucus and cover-slip where the latter was not wetted by the former. These deceptive formations do not represent invasion. Mag. ×400. Specimen 12 hours old.

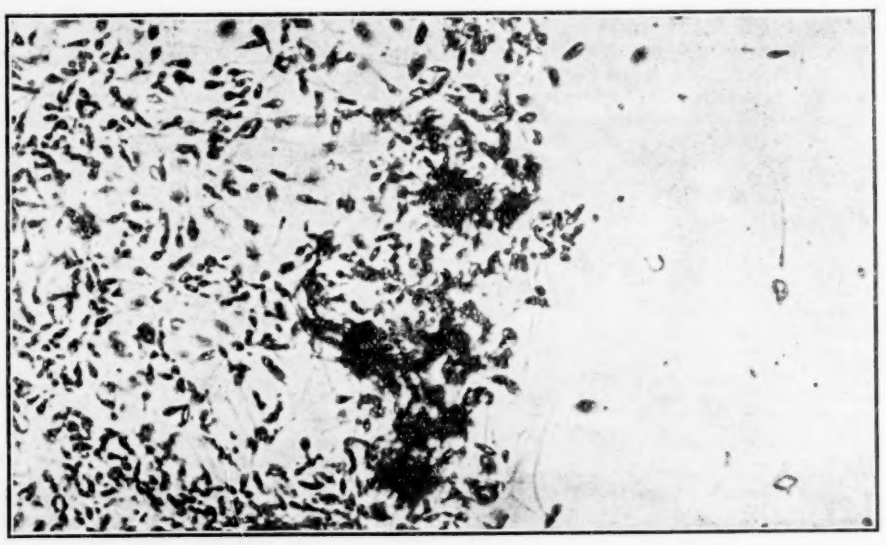


FIG. 3.—Impaired invasion of seemingly normal mucus by spermatozoa (fecund semen). Isolated spermatozoa penetrate the mucus to a shallow depth only. Note "telting" of spermatozoa at the interface. Mag. ×400. Specimen 12 hours old.

Invasion Test in the Male

The technique for testing mucus of doubtful receptivity may be used in the examination of semen of unknown invasive potency. In the present communication only a brief review of the method will be given.

Technique.—Fresh semen obtained by masturbation or taken from a fresh vaginal pool is used; condom specimens are unsuitable. The semen is allowed to liquefy and thus become homogeneous before use. A slide containing fully receptive mucus is used, and is charged with the semen to be tested. The receptivity of the mucus is established by a control-slide in which it is exposed to fecund semen. Little difficulty was encountered in obtaining suitable mucus; for many female patients attend for their own purposes during the ovulatory phase and consent to supply a specimen of mucus. Several slides containing mucus may be set up and stored in the moist chamber (e.g., a Petri dish) for several hours before use. In all other respects the technique follows the description given previously.

Results.—Nearly two hundred specimens of semen were tested against receptive mucus. From many of these specimens sperms invaded the mucus, with good survival and persistent motility after invasion. These "normal" findings demand no further description.

Several types of impaired invasion and/or viability were noted, however. In the simplest cases the number of invaders was small, both absolutely and in relation to the density of the spermatozoa in the semen. Such deficient invasion is often associated with low viability *in vitro*. In other instances invaders tended to lose forward motility within 60 minutes after penetration. In most of these cases invasion remained

shallow. Still more pronounced was the deficiency of semen which provided invaders that became completely immotile almost immediately after invasion. Some specimens contained only isolated sperms capable of invasion or none at all. Lastly, in some specimens viability of the spermatozoa is so low that most of them lose motility soon after emission; and in these cases the usual assembly of sperms at the interface is absent. Apart from non-invasive semen the various types are not sharply differentiated, though by every standard they show greater or lesser impairment of normal behaviour.

The relationship between cytological characteristics of the semen and the invasive potency of the sperms varies widely. In some cases of oligozoospermia invasive potency was higher than in some densely populated specimens; in fact, some of the latter provided no invaders. Generally speaking, the cytological assay of semen does not yield sufficient information concerning the invasive potency of the spermatozoa, on which fecundity depends. On the other hand, high invasive potency does not always balance low density of spermatozoa (oligozoospermia). Our experience suggests the necessity for combining invasion tests with the routine assay of semen.

The treatment of deficient invasive potency is a subject outside the scope of the present communication. It has been referred to by Walker (1945).

Summary

Semen and cervical mucus are virtually immiscible. Fecundation depends on the ability of the sperms to penetrate the interface between mucus and semen. The mode of invasion is described.

This process can be studied individually in special contact preparations, the receptivity of the mucus being assessed by exposure to fecund semen, while the semen is assayed against normal ovulatory mucus.

In many sterile women the mucus does not admit or sustain spermatozoa, and these findings are closely correlated with the results of Sims (post-coital) tests.

The non-surgical treatment of cervical dysfunction is briefly surveyed, with special reference to sulphonamides.

The authors wish to acknowledge the co-operation of Dr. R. C. Matson (Royal Surrey County Hospital), who carried out the bacteriological examinations in numerous cases. Details of the bacteriological and other observations will be published in due course.

References

Barton, M., and Wiesner, B. P. (1944). *Lancet*, **2**, 563.
——— (1945). *Irish J. med. Sci.*, 6th ser., 567.
Clift, A. F. (1945). *Proc. roy. Soc. Med.*, **39**, 1.
Green-Armytage, V. B. (1943). Ibid., **36**, 105.
Lane-Roberts, C., Sharman, A., Walker, K., and Wiesner, B. P. (1939). *Sterility and Impaired Fertility*, London.
Miller, E. G., and Kurzrok, R. (1932). *Amer. J. Obstet. Gynec.*, **24**, 19.
Palmer, E., and Palmer, R. (1945). *Gynéc. Obstét.*, **44**, 198.
Rideal, E. K. (1930). *An Introduction to Surface Chemistry*, Cambridge.
Schroeder, R. (1928). *Handbuch der Gynaekologie*, Vol I, Part 2, Munich.
Siegler, S. L. (1944). *Fertility in Women*, Heinemann, London.
Viergiver, E., and Pommerenke, W. T. (1946). *Amer. J. Obstet. Gynec.*, **51**, 192.
Walker, K. M. (1945). *Proc. roy. Soc. Med.*, **38**, 243.
Wollner, A. (1936). *Amer. J. Obstet. Gynec.*, **32**, 365.

ACUTE OSTEOMYELITIS OF LUMBAR SPINE IN AN ADULT

BY

HARRY FREEMAN, F.R.C.S.

Surgical Registrar, National Temperance Hospital, London

The following case may be of interest on account of the rarity with which this disease occurs in adults, and because of its close resemblance to tuberculosis of the region involved.

Case Report

The patient, a man aged 43, was first seen in the outpatient department of this hospital on Feb. 8, 1946. He looked very ill, and complained of a painful swelling behind the left hip, the pain being more severe when sitting and at night. He had noticed the swelling three weeks previously, and it had increased in size; his temperature was 101° F. (38.3° C.), he had a dry cough, and night sweats disturbed him considerably. There was no history of injury. The swelling was situated a little behind and below the great trochanter deep to the gluteus maximus muscle (Fig. 1); it was diffuse, and gave the impression that it was connected with the trochanteric bursa of the gluteus maximus. There was deep fluctuation. Hip movements were free in all directions but caused pain in the buttock. A little irregularity in outline and stiffness in the lower lumbar spine were present, and tenderness on deep pressure in the region of the first and second lumbar vertebrae could be elicited. The patient had lost much weight.

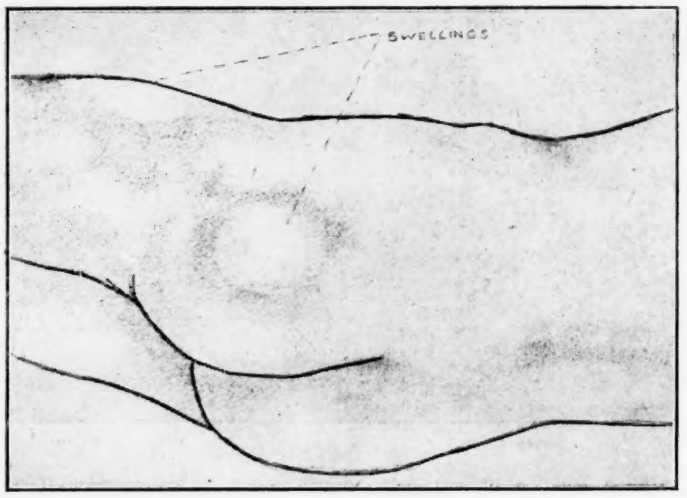


Fig. 1.—Showing the position of the swelling.

He was admitted to the ward, but a general examination did not reveal any abnormality in the chest or elsewhere, and, in view of the insidious onset and tenderness over the spine, a diagnosis of Pott's disease seemed the correct answer to this problem. *X*-ray films of the spine showed rarefaction of the upper anterior aspect of the second lumbar vertebra with possible involvement of the first (Fig. 2). The blood picture showed a severe secondary anaemia, with haemoglobin 52%, red blood corpuscles 2,630,000, white blood corpuscles 18,000, of which 87% were polymorphs; the blood sedimentation rate was 67 mm. in one hour. This picture was entirely contrary to expectations, strongly suggesting a pyogenic rather than a tuberculous infection, and on aspiration of the abscess a dirty yellow pus was evacuated which provided a copious growth of *Staphylococcus aureus*. Six days after admission the whole left leg became swollen, and another tender area was discovered on the antero-lateral aspect of the thigh a little below the level of the great trochanter. Under general anaesthesia the original abscess was laid open by a 4-in. (10 cm.) incision, and over a pint (568 ml.) of pus under considerable pressure was evacuated; exploration with the finger revealed that the abscess was connected with, or seemed to come from the direction of, the sacro-iliac foramen. On exploration of the lower part of the wound another abscess cavity was entered, and this must have accounted for the swelling on the antero-lateral part of the thigh. Fifteen ounces (425 ml.) of pus were evacuated from this region.

It would appear that the pus had tracked from its origin in the lumbar spine into the pelvis, along the structures, passing through the sacro-iliac foramen to the gluteal region, and then along tissue planes to the front of the thigh, where pressure on the femoral vein resulted in generalized swelling of the limb.

The depths of the abscess cavities were well insufflated with sulphathiazole powder mixed with 100,000 units of penicillin, and a drainage-tube was inserted down to but not through the sacro-iliac foramen. The wound was partly closed with interrupted sutures, dressed, and the patient was returned to bed. A transfusion of two pints (1.14 l.) of blood was given and penicillin in 30,000-unit doses intramuscularly continued four-hourly. The patient was extremely ill, and his condition gave rise to much anxiety; but on the third day after operation the temperature became normal and the pulse improved both in rate and in volume. Penicillin was

continued for a further three days following the drop in temperature. A plaster bed was prepared, in which he was comfortably nursed; his general condition showed steady improvement and pain had almost disappeared. The wound was completely healed five weeks after operation. His haemoglobin had now risen to 70%, with red cells at 4,020,000. The spine was again *x*-rayed, and recalcification as well as some new bone formation was evident; the presence of a small sequestrum was also reported.

The patient was discharged to a convalescent home nine weeks after admission to the hospital, fit, and entirely free from pain; although not yet allowed to walk, he was able to sit quite comfortably and seemed very anxious to "get going." He was seen again on May 17, after his return from the convalescent home, and he could move about and walk quite freely without discomfort or pain. A further *x*-ray film on May 31 showed a little more new bone formation.

FIG. 2.—Showing destruction of bone and rarefaction of the upper anterior part of the second lumbar vertebra.

Comment

The interesting features about this case are the insidious onset, the age of the patient, and the strong resemblance clinically to tuberculous disease of the bone and the development of a very large collection of pus in the presence of a comparatively small area of bone necrosis, as shown by *x*-ray films.

I would like to thank Mr. D. Denham Pinnock, senior surgeon to the hospital, for the facilities he gave me for dealing with this case, and for his wise counsel throughout; and Dr. Moore Patterson for his great interest and help, and for permission to reproduce the skiagram, which was taken in his department. Lastly, I must not forget the care and devotion shown by Sister Watts, whose nursing largely subscribed to the recovery of this patient.

The Council of British Societies for Relief Abroad (75, Victoria Street, London, S.W.1) states that since the autumn of 1945 members of British voluntary societies have been doing welfare work on behalf of German people living in the larger cities of the British Zone and among the refugees coming in from the East. These workers are grouped in teams numbering about 12 people, men and women with varied training. They represent the British Red Cross and Order of St. John, the Quakers (Friends Relief Service and Friends Ambulance Unit), the Salvation Army, the Girl Guides, the Save the Children Fund, the Catholic Committee for Relief Abroad, and the International Voluntary Service for Peace. Many of these organizations have members serving not only in Germany but also in other countries where there is severe distress—in France, Poland, Austria, Italy, Yugoslavia, and Greece.

NICOTINAMIDE DEFICIENCY AFTER ORAL ADMINISTRATION OF PENICILLIN

BY

P. ELLINGER, Dr.phil., Dr.med., F.R.I.C.
Lister Institute, London

AND

F. MACKENZIE SHATTOCK, M.B., B.S., D.P.M.
Three Counties Hospital, Arlesey, Beds

Diminished urinary output of nicotinamide methochloride in human beings after oral administration of succinyl sulphathiazole or sulphaguanidine has been described by Ellinger, Coulson, and Benesch (1944) and by Ellinger, Benesch, and Kay (1945); and nicotinamide deficiency symptoms have been noted in a case of Flexner dysentery after oral administration of succinyl sulphathiazole by Hardwick (1946). One of us (F. M. S.) has had the opportunity of observing the occurrence of "black tongue" after oral administration of sulphadiazine in one case and of penicillin in another. These cases were reported at the quarterly meeting of the Royal Medico-Psychological Society on Feb. 14, 1946. Quite recently Bedford (1946) reported two cases of "black tongue" after oral application of penicillin, mentioning that he had heard of another. We were able to examine further the patient who had developed "black tongue" after oral administration of penicillin, and it may be of interest to report findings in this case.

The patient was a woman aged 55 employed on administrative duties. She enjoyed good health, but during the war years she had suffered from three mild attacks of nicotinamide deficiency, characterized by lassitude, pellagroid skin changes, erythematous rashes on forearms, legs, and neck, thickening of the skin followed by pigmentation, mild disturbances of deep sensation of the legs with clumsy gait and difficulty in balancing on rough ground, and by abdominal pain and distension. All three attacks were quickly relieved by taking 200 mg. of nicotinic acid daily for four to five days, after which 50–100 mg. was taken for a few more days. She had been free from attacks for two years and attributed this to an improved diet—more protein and less carbohydrate.

In October, 1945, she had a mild attack of pharyngitis for which she was given 15 penicillin tablets (Boots) of 500 units each in five days; these were placed on the dorsum of the tongue and allowed to dissolve. They were supplemented by oral administration of penicillin drops containing 500 units per ml. in saline solution pipetted on to the tongue at frequent intervals over five days. At the end of this time the tongue showed a dark slaty colour, which was discovered accidentally on examining the throat. The patient now complained of lassitude, of inability to concentrate on mental work, and of subjective sensory changes in both legs: the legs felt "woolly" and as if they did not belong to her and had to be "placed." The skin of the forearms and back of the hands was dry, coarse, and inelastic.

Penicillin was discontinued and nicotinic acid 200 mg. three times a day was taken for three days: subjective symptoms were relieved and the appearance of the tongue was improved, but brown furring persisted for another two days; the skin of the forearms became normal a few days later.

Effects of Oral Penicillin

The patient was willing to undergo further investigation, so it was decided to observe the effect of oral penicillin on her daily urinary nicotinamide methochloride output, examined by the method of Coulson, Ellinger, and Holden (1944), and to relate this to any clinical changes that might occur. The examination was carried out between Feb. 20 and March 12, 1946.

The daily nicotinamide methochloride output estimated for four days before penicillin administration was 2.40, 2.40, 2.46, 2.01 mg., and on the fifth day the response (actual elimination minus predosing mean elimination) to the ingestion of 100 mg. nicotinic acid was 6.38 mg., equal to 4.55% of ingested nicotinic acid. Penicillin administration was started on March 2, 1946: 34 tablets (Boots) of 500 units each were applied during six days, one at a time, to the left side of the tongue and allowed to dissolve in this position. The urinary output of nicotinamide methochloride fell on the fourth and fifth days of penicillin administration to 1.24 and 1.02 mg. respectively, and

the first symptoms of nicotinamide deficiency occurred. When penicillin was discontinued on the seventh day the nicotinamide methochloride output rose immediately to 2.66 and 2.42 mg. per day, and to 6.46 mg. after ingestion of 100 mg. nicotinic acid, which means a response of 4.08 mg., equivalent to 2.92% of nicotinic acid ingested.

After 11 tablets (thirty hours) the tongue presented the following aspects: a few light-brown patches were seen on the dorsum

Fig. 1

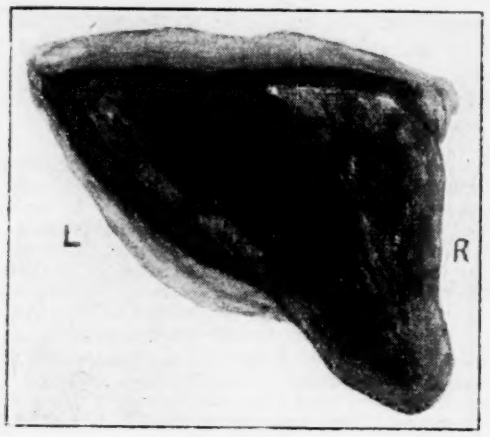


Fig. 2

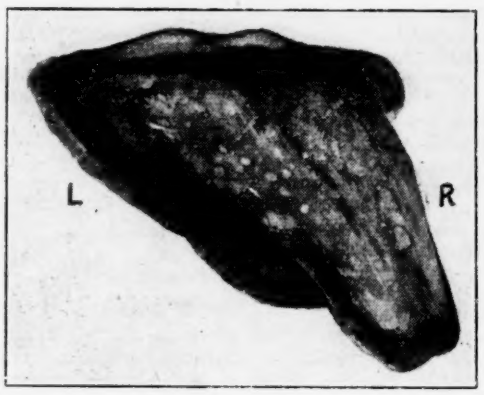


Fig. 3

Figs. 1 to 3. Showing appearance of tongue during the second course of penicillin, reproduced from water-colour paintings made from mirror images: Fig. 1 on third day; Fig. 2 on sixth (last) day of penicillin administration; Fig. 3 on fourth day after discontinuing penicillin. L = left, R = right, side of tongue.

mainly to the left of the midline. These patches could not be removed by washing or scraping the mucous membrane. After the 18th tablet (third day) the dorsum was of a blue-grey cyanotic colour with patchy brown areas (*vide* Fig. 1). After 34 tablets (sixth day) the colour of the dorsum had darkened and the brown areas were now very striking, particularly on the left side (*vide* Fig. 2). They did not extend to the posterior third. In some places discoloration was punctate and individual papillae brown-topped. The tip, which was denuded of papillae, and the margins were pink. Small venules of a deep cyanotic colour could be seen coursing over the pink lateral margins. The tongue was bulky and the fissures were deeper than usual.

On the fifth and sixth days of penicillin administration malaise and lassitude were experienced. Mental work deteriorated owing to the difficulty felt in concentrating and in recalling the names of objects and concepts not in constant and familiar use. Recall of the forgotten item had to be aided by a laborious process of association. Subjective sensory changes were experienced, and when walking over a rough surface visual aid and a wider base were necessary to maintain equilibrium. The soles of the feet felt "woolly," so that inequalities in the ground could not be easily negotiated. There were also several attacks of epigastric pain, distension without diarrhoea, and urgency of micturition. Slight ataxia was the only neurological sign elicited. On the fifth day an erythematous rash and irritation of the skin of the dorsum of the feet were noted. These symptoms persisted for three days after penicillin was discontinued, while the colour of the tongue faded and a yellow-white fur which could not be scraped off spread over its surface (*vide* Fig. 3). On the ninth day 100 mg. of nicotinic acid given orally caused rapid relief of subjective symptoms, and the tongue appeared normal by the eleventh day.

After discontinuing penicillin the urinary nicotinamide methochloride elimination rose to a higher level than that existing before the experiment (average between March 13 and 21, 4.7 mg./day).

Owing to a misunderstanding urine samples had not been collected during the first days of penicillin dosing; it was therefore decided to carry out another experiment with 24-hour samples of urine, using for the saturation tests parenteral nicotinamide instead of oral nicotinic acid. After three preliminary days (March 29–31, 1946), during which the urinary nicotinamide methochloride eliminations were 4.35, 4.69, and 4.09 mg./day, 100 mg. nicotinamide was given. The response was 19.8 mg. nicotinamide methochloride, equivalent to 13.9% of the administered nicotinamide.

When 100,000 units of penicillin (Glaxo, almost pure) in aqueous solution were ingested by mouth in equal doses from April 3 to 8 inclusive, the urinary nicotinamide methochloride output decreased to 3.12, 2.98, 2.55, 2.27, and 2.55 mg./day respectively. On April 8, 100 mg. nicotinamide was given parenterally; the response (21.1 mg., equal to 14.8%) was similar to that obtained before this course of penicillin was started. After discontinuing penicillin the nicotinamide methochloride elimination fell below the pre-penicillin level, and on April 12–18 (excluding April 17) it was 3.45, 2.18, 1.82, 2.24, 2.63, 2.32 mg./day respectively. On the fourth day of penicillin administration a slight erythematous rash of the face and forearms and mild epigastric pain were noted. Mental dullness and difficulty in concentration were experienced, but the symptoms were much less definite than on earlier occasions. On the fifth day there were awkwardness in walking owing to a "woolly" feeling of the soles, some restlessness, and difficulty in recalling names. The tongue was red, felt bulky and uncomfortable, but showed no obvious change from the normal. On the sixth day there was a light-brown fur on the dorsum of the tongue and the tip was red and denuded of papillae; the skin of the forearms and of the backs of the hands and feet was somewhat dry and inelastic. After 100 mg. nicotinamide intramuscularly all subjective symptoms were rapidly relieved; but the skin of the forearms remained dry, inelastic, and wrinkled for another four days, while the fur on the tongue cleared rapidly.

Discussion

Darkening of the tongue was observed after local treatment of the oral cavity with penicillin in an otherwise healthy person who had previously shown signs of nicotinamide deficiency on several occasions. In a second person a similar appearance of the tongue was noted after oral administration of 20 g. of sulphadiazine for the relief of an infection of the upper respiratory tract.* The darkening of the tongue in the latter case was

first observed two days after a three-day course of sulphadiazine had ended. The only other signs noted were dryness and itchiness of the skin. The condition was rapidly relieved by nicotinic acid in both cases. Recently three more cases of a darkened tongue were reported by Bedford (1946), and the aetiology of two of these cases was discussed. "Black tongue," which is the sign of canine nicotinamide deficiency, has not, so far as we are aware, been previously described as occurring in human nicotinamide deficiency. In this condition other changes in the appearance of the tongue prevail. In none of the volunteers examined by Ellinger *et al.* (1944, 1945) was black tongue observed after oral administration of succinyl sulphathiazole or sulphaguanidine. The fact that in our case and the three mentioned by Bedford penicillin was in contact with the tongue for a considerable time makes it probable that the changes observed are partly due to a local effect of the drug on the tongue. In the case here described in detail, however, additional signs common in human nicotinamide deficiencies also developed after the oral intake of penicillin. The earlier spontaneous attacks of nicotinamide deficiency and the low nicotinamide methochloride elimination, and the low response to nicotinic acid before the second course of penicillin, indicated a low nicotinamide status when compared with the normal output and response as described by Ellinger and Coulson (1944), Ruffin, Cayer, and Perlzweig (1944), Coulson, Ellinger, and Smart (1945), and Ellinger, Benesch, and Hardwick (1945). The nicotinamide methochloride output was decreased by the second course of penicillin to a deficiency level, and severe deficiency symptoms were experienced. After discontinuing penicillin the nicotinamide rose to a higher level than before the course. This may have been due to a change of the intestinal flora caused by penicillin. It is now well established that up to two-thirds of orally administered penicillin can reach the colon unaltered (McDermott, Bunn, Benoit, DuBois, and Reynolds, 1946), and the decrease of nicotinamide methochloride output after penicillin is in full agreement with the findings of Ellinger *et al.* (1944, 1945) after the intake of succinyl sulphathiazole or sulphaguanidine.

At the beginning of the third course of penicillin the nicotinamide level was far above the deficiency level, and general deficiency symptoms developed more slowly and were less severe, while the nicotinamide methochloride elimination was similarly depressed but did not fall as low as during the second course owing to the higher initial level. The darkening of the tongue, which had been very marked on the first two occasions when the contact of penicillin with the oral cavity was protracted, was far less noticeable on the third occasion when the contact was only brief.

From the biochemical investigation of the case it is evident that penicillin orally administered can produce a nicotinamide deficiency, as Ellinger *et al.* (1944, 1945) have shown for succinyl sulphathiazole or sulphaguanidine. The degree of the decrease of nicotinamide methochloride output caused by these drugs varies within wide individual limits.

Whether a nicotinamide deficiency develops or not depends on the relative contribution of the bacterial flora to the nicotinamide requirements of the person concerned and on the nicotinamide status of that person: this is evident from the varying reactions of our patient to the three courses of penicillin. The local effect causing the darkening of the tongue has still to be investigated; the appearance of the tongue did not suggest that this darkening was due to a bacterial film but rather to a pigmentation of the papillae. The nicotinamide status of patients treated orally with penicillin should therefore be watched, and if necessary nicotinamide should be given parenterally.

Summary

A case of nicotinamide deficiency after oral intake of penicillin has been described which was characterized in addition to the known nicotinamide deficiency symptoms by darkening of the tongue similar to that observed in another patient after intake of sulphadiazine. In both cases symptoms disappeared after discontinuance of the drugs and administration of nicotinic acid.

We wish to record our thanks to Dr. N. McDiarmid, medical superintendent of Three Counties Hospital, for permission to publish these cases; to Dr. T. F. Macrae, of Glaxo Laboratories, Ltd., for a generous gift of penicillin; and to the Ella Sachs Plotz Foundation, Boston, for a grant for technical assistance to one of us (P. E.). Our thanks are due to Miss J. Vaughan Morgan for technical assistance.

REFERENCES

Bedford, P. D. (1946). *British Medical Journal*, **2**, 63.
Coulson, R. A., Ellinger, P., and Holden, M. (1944). *Biochem. J.*, **38**, 150.
—— —— and Smart, G. A. (1945). *British Medical Journal*, **1**, 6.
Ellinger, P., Benesch, R., and Hardwick, S. W. (1945). *Lancet*, **2**, 197.
—— —— and Kay, W. W. (1945). *Lancet*, **1**, 432.
—— and Coulson, R. A. (1944). *Biochem. J.*, **38**, 265.
—— —— and Benesch, R. (1944). *Nature*, **154**, 270.
Hardwick, S. W. (1946). *Lancet*, **1**, 267.
McDermott, W., Bunn, P. A., Benoit, M., DuBois, R., and Reynolds, M. E. (1946). *J. clin. Invest.*, **25**, 190.
Ruffin, J. M., Cayer, D., and Perlzweig, W. A. (1944). *Gastroenterology*, **3**, 340.

WORK OF THE GOVERNMENT LYMPH ESTABLISHMENT

JULY, 1898, TO JUNE, 1946

BY

H. S. FREMLIN, M.R.C.S., L.R.C.P., D.P.H.

Formerly Bacteriologist to the Lymph Department of the Ministry of Health

The total number of doses of calf lymph issued from the Government Lymph Establishment between January, 1899, and June, 1946, was 43,804,088, and the number of calves used was 25,350. It is interesting to note that of the total doses issued 21,893,781 went to civilians and 21,910,307 to the Forces.

We began our work at the British Institute of Preventive Medicine at Chelsea, later known as the Lister Institute of Preventive Medicine. Previously vaccination was carried out chiefly from human lymph. The vaccinator inoculated it from arm to arm in children; the cases were examined a week later and the child that produced the best vesicles was selected for the vaccination of the next group of children. Any excess of this good lymph was collected either in capillary tubes or on small ivory or bone slips pointed at the end on which the lymph was removed. These were then put round the rim of a plate to dry; when dry they were kept in a box or paper holder for use when required.

At that time Dr. Cory, assisted by Dr. Stott and Mr. Savory, had an establishment known as the Animal Vaccine Station at Lambs Conduit Street, where calf lymph was used for those who preferred it. One calf was vaccinated every week and yielded sufficient lymph for direct vaccination and for collection in tubes. These tubes were sent to the Local Government Board and were examined by Mr. Farn, I think for the presence of blood; and if blood was found they were rejected. The advantage of calf lymph was that such diseases as syphilis were avoided. Nevertheless, whether the lymph was obtained from children or calves, bacteria were introduced with the vaccine and might set up inflammation, at times with serious consequences.

In Germany and in France it was found that vaccine could be diluted with six times its weight of 50% glycerin in sterile water and still be equally active—this, of course, allowing of a great saving of lymph. The Local Government Board sent Drs. Copeman and Blaxall to make inquiries on the spot, and they reported favourably on this method. Dr. Copeman investigated the effect of the glycerin on the bacteria contained in the vaccine, and found that though the lymph showed numerous bacteria before the glycerin was added they had almost disappeared within a month without any loss of potency on the part of the lymph itself. The dilution of 1 in 7 of the lymph added greatly to the amount available for use, and this was important when hundreds of thousands of cases were vaccinated every year. It took a long time to collect lymph direct from a vesicle in its pure state, and this would have made it impossible to provide the number of tubes required—about 2,000 a day and possibly twice as many—during a smallpox epidemic.

For calf inoculation a good quality of lymph was essential. When we started work at Chelsea we used calf lymph at first,

but as ours failed we obtained supplies from both Germany and France. That from Cologne was the best. Our stock of lymph was kept at 50° F. (10° C.) and it was potent for six weeks at this temperature. In this connexion, thanks to the courtesy of the Director of the Lister Institute, I had the opportunity of keeping glycerinated lymph for some hours in liquid air at 300° F. (185° C.) below zero. This destroyed neither the vaccine nor the accompanying bacteria. With regard to the stock lymph used for calf vaccination, we found that rabbit lymph gave good results on calves and so we were able to obtain suitable material.

When we began our work there were four of us on the staff—Dr. Blaxall and myself, a secretary, and a boy to assist us. After about two years an epidemic of smallpox broke out and we required a great increase of staff, not only for calf vaccination and bacteriological investigation, but also for clerical work and dispatch of tubes, and there was much additional work for laboratory assistants.

New Establishment at Hendon

In 1907 the Government Lymph Establishment at Hendon was ready for us. Here we had a large two-storey building for laboratory and clerical work, the clerical department being on the ground floor, the laboratories on the floor above. Near by was a large room for vaccinating calves. Four calf stables, each capable of holding twenty animals, and having lofts for storage, were in the same area, together with a small animal house. The electricity and hot water were supplied from a large building with a staff of engineers. In addition, two senior officials of the establishment lived on the premises. Here we had a permanent staff of thirty, as we had on the premises all the men who attended the calves as well as those who assisted in their vaccination and in the collection of the lymph pulp.

Owing to the poor keeping qualities of calf lymph, which quickly loses potency at normal temperatures, production in the early days was governed by the demand, since it had to be issued as soon as it could be passed through the necessary laboratory tests. This meant that no reserve could be kept to meet sudden demands occasioned by outbreaks of smallpox. Experiments in cool storage were made at first with ice (or ice chests), in which the lymph would keep fresh for about six weeks. Then, in 1902, a cool chamber was hired and lymph was stored experimentally at 22° F. (–5.5° C.). By 1904 these experiments had proved so promising that inquiries were made as to the best refrigeration plant available for the projected new establishment at Hendon. Plans for this building were already in hand. The plant was installed and ready for use when the establishment was opened in 1907. From July 3, 1907, all lymphs were placed in the refrigerator, working below 0° C., as soon as they were collected. Further experiments were made, and it was established beyond dispute that lymph, kept continuously below freezing point, would retain its potency for two years or more. Cold storage of vaccine lymph has since become universal.

The introduction of this method of storing lymph made it possible for a reserve to be kept, and material equivalent to over a million doses in various stages of preparation was normally held in reserve to meet sudden demands. The value of this reserve was amply demonstrated at the outbreak of the 1914–18 war, when very large supplies of lymph were needed immediately for the Forces. Between 1914 and 1918 over 7,000,000 doses were issued. An even better demonstration was afforded during the 1939–45 conflict, when not only our own Forces but those of our Allies stationed in this country had to be supplied. In addition we supplied 750,000 doses to Scotland during the 1942 outbreak of smallpox there, as well as dealing with minor outbreaks in England. Altogether, from September, 1939, to May, 1945, over 15,000,000 doses were issued. At one time during the war our reserve stood at over 5,000,000 doses.

Next to the importance of the discovery of vaccine lymph itself, the introduction of refrigeration must certainly rank second. With its advent an adequate reserve can be kept for emergencies, and production can be spread evenly over a period instead of going up and down with a fluctuating demand. The maintenance of a reserve is very important, as between the necessity for an increase in production and the material being available for distribution there must always be a time-lag of at least a month. This delay is unavoidable. Extra animals have first to be procured, and then kept at least five days in quarantine before they are vaccinated. A further few days elapse before the material can be collected, and, after that, time must be allowed for the laboratory tests, tubing, etc.

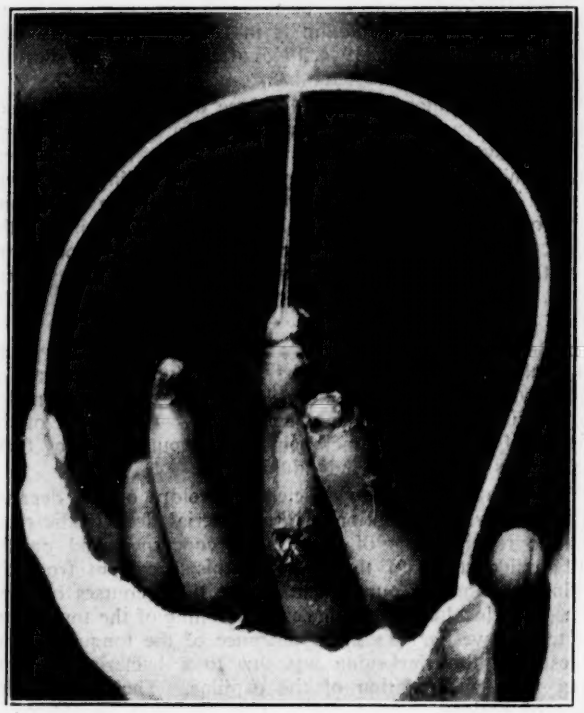
It is certainly safe to say that without refrigeration the enormous demands of the last war could not have been met and all orders supplied, as they were, on the day of receipt. In conclusion, I wish to mention the work of the secretary, Mr. P. W. Sutton, who dealt with the number of calves and tubes required each year, and carried out this exacting work from 1899 to the present time. He has kindly contributed the section above dealing with cold storage.

Medical Memoranda

Novel Method of Digital Traction

In a recent case of multiple compound fractures of the phalanges I hesitated to use the ordinary pulp pin because the pulp of the finger-tips was lacerated and because I did not want to prejudice an already doubtful circulation. At Dr. T. S. Cochrane's suggestion, therefore, I adopted the following method, which I have not seen described and which proved completely satisfactory.

Under general anaesthesia a small hole (about 1/16 in. (1.6 mm.) in diameter) was bored manually through the central part of the finger-nail by means of a suitable dental drill and



handle. A medium-sized curved cutting needle, threaded with silk thread, was passed proximally between the nail and its bed to emerge through the hole. Sufficient traction was applied to maintain the fracture in the corrected position, and the ends of the silk were tied and fixed to the usual "banjo" splint, as shown in the accompanying photograph. This kept the fracture in satisfactory position for four weeks, without any pain or discomfort to the patient. The expected fraying of the silk against the edge of the nail hole did not occur.

I should like to express my thanks to Dr. Oliver Walker for the excellent photograph.

KENNETH M. MACLEOD, M.D.,
Deputy Medical Superintendent and Surgeon
Dartford County Hospital.

Reviews

RADIOTHERAPY IN MALIGNANT DISEASE

The Results o Radium and X-ray Therapy in Malignant Disease. Second Statistical Report from the Holt Radium Institute, Manchester. 1934–38. Compiled by Ralston Paterson, Margaret Tod, and Marion Russell. (Pp. 145. 7s. 6d. plus 5d. postage.) Edinburgh: E. and S. Livingstone. 1946.

This is an epic account of work done in the Holt Radium Institute before the war. It is a statistical volume showing results in an easily appreciated form, and, so far as the writer of this review can judge, the statistical work has been faithfully carried out and the figures give an undistorted impression of the results. The results are all analysed at least 5 years after treatment, and it is evident that the follow-up organization has been sufficiently good to permit of the loss of a negligible proportion of the patients treated, in spite of the difficulties caused by the war.

In the general survey at the beginning of the report three essentials of cancer work are listed. The first of these is education of patient and doctor, and the report is itself meant to educate both. For this purpose it is divided into three parts. The first is designed to show the organization and results obtained in a manner which can be assimilated by the intelligent layman. Since 1942 there has gradually developed an organization for seeing and treating patients, centred on Manchester and covering a region from Westmorland to Staffordshire, and an increase of from 1,313 to 4,530 patients seen per annum has occurred. A great increase is shown in the proportion of *x*-ray to radium treatment carried out during the war. The results of the treatment are striking in a disease popularly supposed to be incurable: 40% of about 6,400 patients were alive 5 years after treatment. Tables are given in this part of the report concerning the various sites affected by cancer, and in all of these the importance of early treatment is made obvious.

The second part of the report is concerned with relating results to method of treatment. Certain methods appear to give better results than others. Some of the advantages satisfy tests of statistical significance, but to enable those interested to make up their minds whether the advantages are real or apparent more facts must be given regarding the way in which the treatment is decided. Any such figures as these can only support one method of treatment against another if there has been random selection of cases. Part III of the report shows that a very small proportion of survivors die of cancer after 5 years.

This is the best report of its kind ever seen by the reviewer, and it is to be hoped that other centres will be afforded the necessary facilities to give a similar account of their work.

VOLUNTARY HEALTH WORK IN THE U.S.A.

Voluntary Health Agencies: An Interpretive Study. By Selskar M. Gunn and Philip S. Platt. (Pp. 382. $3.00.) New York: Ronald Press Company.

In 1941 the National Health Council, assisted by the Rockefeller Foundation, launched a three-year study of voluntary health agencies of the United States. An influential advisory committee was appointed and the results of the survey were sent to forty leaders in the field of health and welfare, who held a two-day conference in New York to discuss them. The study now published is one of the most complete of its kind ever prepared; yet it is remarkable what is left out. Hospitals are not included. All institutions for the custodial care of the sick, dispensaries, clinics, out-patient departments, are ruled out; so are associations formed for supplying group medical service, medical insurance organizations, health services in industrial undertakings. Even professional bodies such as the American Medical Association, much of whose activity is devoted to serving and protecting the health of the people, are touched upon only incidentally.

What, then, does the survey include? Organizations concerned with health education, community health planning, the combating of certain diseases, and the advancement of research and legislation relating to health. There are 20,000 such voluntary health agencies in the United States. At least 300,000 rather exceptional men and women are giving freely of their time to the direction of these enterprises, and probably a million others are helping in a less official way. They collect ten million pounds a year from a warm-hearted public. The agencies are the expression of public spirit, pride in a healthy community, a highly developed civic sense. Most of them began with an individual sensitive to a public need who organized a group in his locality, and many expanded into a State or national organization. Thus in Philadelphia in the latter part of the nineteenth century a movement against tuberculosis was started; in New York, the combating of venereal disease; in Connecticut, the promotion of mental hygiene; in many cities, the care of mothers and infants. All these movements presently became national, and so later on did those for cancer control, for the prevention of blindness, for the assistance of the hard of hearing, for public health nursing. One of the most extraordinary developments in recent years has been an organized attack upon infantile paralysis, including research into cause, prevention, and cure. Nothing like this movement, which owes a great deal to the name of Roosevelt, has ever swept over the American scene. It has administrative branches in 36 States, and its separate agencies number 2,600, exceeded only by the tuberculosis associations, national, State, and local, which number 3,000, and the 3,700 chapters of the American Red Cross. On the other hand, for some reason, the most recent national organization, concerned with diabetes, has failed to touch the public imagination. One voluntary agency with national status is the birth control movement, which since 1942 has been the Planned Parenthood Federation of America, Inc. Its battle is not yet won. In Massachusetts doctors are not allowed to prescribe contraceptives, and in Connecticut their use is forbidden.

Many of these voluntary movements when they reach a certain level of public acceptance are taken over by public health departments. The combating of infant mortality is now a Government concern, whereas 35 years ago, in 26 out of 28 of the largest cities of the Union, voluntary agencies were carrying the entire responsibility. In all this absorption there is nothing for resentment. After all, the voluntary movement betokens the interest of a relatively few awakened people; the Government organization means the potential awakening of the whole community. Voluntary effort is, of course, more roving, more experimental, and its value in that respect has to be weighed against the assured support and patronage and (perhaps) more efficient management by the State. Some voluntary agencies have shown a praiseworthy resilience in the face of encroachment. One instance is the House of the Good Samaritan at Boston. It began as a tuberculosis hopital. Then its service was taken over by the State, whereupon it specialized in cancer. The cancer service in turn became a State service, and now the institution is concentrating on cardiac cases and carrying out notable research on rheumatic fever.

In spite of this flow of voluntary service and contribution, those responsible for the survey are by no means satisfied. The agencies are spread unevenly. They offend the natural taste of the administrator for uniformity. They sprang up spontaneously and independently. The wind blew where it listed. The seed was scattered indifferently on all manner of soil. No central direction or planning was attempted. There is duplication here and gap there. Some segments of the health problem are over-served and others not served at all. There is every kind of confusion and waste. The time has come, say the authors of this study, when the voluntary health agencies must reorganize for the task that lies ahead. Their funds must be used more wisely and economically. There must be more team play, more centralized organization and direction. It is, of course, a great gain to efficiency if, instead of competitive appeals, there can be a nation-wide campaign for the proper distribution of health agencies over the entire country, but it may not be altogether good philanthropy. There may be more to be said for the sporadic local effort than these authors realize. If the taking over of voluntary work by the State dries up the springs of private generosity, so does, to some extent, centralized planning in the voluntary field itself. A citizen subscribes to a movement in his own small town for the after-care and relief of crippled children; he does so because the movement serves his neighbours' children and gratifies his local pride, but if in a redistribution this local movement is judged redundant and replaced by something bigger and better fifty miles away he

may not feel the same interest in it. It is well to leave some ends rough-hewn. The authors say that the voluntary health movement has "its fullest flowering in the United States." They can overdo the trimness of the garden.

AFTER-EFFECTS OF TRAUMA OF THE UPPER LIMB

The Traumatic Deformities and Disabilities o the Upper Extremity. By Arthur Steindler, M.D., F.A.C.S., in collaboration with John Louis Marxer, M.D. (Pp. 515; 1048 illustrations. $10.00 prepaid.) Springfield: Charles C. Thomas. 1946.

Dr. Steindler's well-known eclecticism and catholicism are splendidly displayed in this work. He has set out to discuss not the relatively clear-cut problems of acute trauma but rather the after-effects—the complications of injury. Though "deformity" is a prominent feature, it is rather the disturbances of function that may follow the unsuccessful treatment of injury with which he is more concerned. The author rightly emphasizes how varied may be the disabilities produced by the self-same anatomical lesion and conversely how an identical deformity or disability may result from such very different primary traumatic lesions. In the arm there are particular reasons for stressing function because of its complexity anatomically and physiologically and of its importance to man as a worker.

The mere correction of a malunited radius is of less importance to Steindler than the establishment of a proper physiological usefulness in the limb as a whole. It is, however, not to be supposed that he is only concerned with instruction in the treatment of neglected injuries. While recognizing that the control of infection, the proper alignment of damaged parts, the proper placement of joints with adequate rest to restore biological equilibrium, will prevent future disability, Steindler recognizes that even with perfect primary treatment certain disabilities will still remain.

The work is a mine of information presented largely in the form of case reports. There is a pleasing absence of dogmatism—the cases speak for themselves. Yet we could wish that Dr. Steindler did more often give definite opinion from his vast experience and tell us more about the errors which so often must have been present in the primary treatment before these cases came to him. In a presentation which is patently honest it is inevitable that occasionally it should seem discursive and even incomplete. Nevertheless this is a most valuable study, which all practising orthopaedic surgeons should possess.

If we have one criticism it is with the publisher, who, on the back of the title page, gives stern warning against reproduction of its contents "in any form whatsoever without permission except by a reviewer who wishes to quote extremely brief passages." This is indeed strange in a medical work by a man of such universal sympathy, who has given much to mankind both in originality as well as in what he himself has selected from the writings and practice of other workers the world over.

SOME VICTORIAN MEMORIES

Tooting Corner. By Eric Bligh. (Pp. 336. 15s.) London: Secker and Warburg. 1945.

"The great Victorian age . . .", so Mr. Bligh refers to it; and if its contemporaries were more confident of its greatness than we are, at least we cannot deny that they were accustomed to living in the grand manner. "Characters" were as abundant as our gnarled yet shapely English trees, and preached, declaimed, prayed, bred, built, expressed themselves with a fluency and vigour that shame our supposedly uninhibited "century of the common man." *Tooting Corner* teems with such people. The author's father dominates these reminiscences with his forceful personality and masterful appearance; indeed, like so many of the more famous men of his time he seems to have borne a striking resemblance to Landseer's lions. No age is better suited than the Victorian to reminiscence; like a Pre-Raphaelite tapestry the total picture is confusing, overcrowded, whereas the corner revealed in one man's memory is both delightful and indicative of the whole.

Most of Mr. Bligh's ancestors were Dissenters, and his accounts of their chapels, thick black clothes, odour of yellow soap, extemporary and interminable prayers poured forth among pitch-pine walls and imitation morocco bindings, are recorded with an amused detachment that is likely to be shared by most of his readers. His father, who was a doctor, graduated at Edinburgh, spent several years in Demerara tending the natives and preaching to them as persuasively as an ignorance of their language would permit, and finally settled at Tooting—then a country town—where patients seem to have been even more reluctant than usual to pay their doctors' bills. Hard, often thankless, underpaid work was his lot; a laconic entry in his diary runs: "Miss C. confined, child dead. Mrs. C. lying in bed all day and drinking gin."

Of himself the author says little (the tale ends with his schooldays); but he had the misfortune to be afflicted with a severe stammer throughout his youth, and the attempts of various doctors to cure it make instructive reading. Perhaps the depths of barbarity were reached by the specialist (described as a comparatively eminent authority on stammering) who performed circumcision to loose the wretched lad's tongue. He was finally cured in his later years by psychotherapeutic suggestion.

This is an excellent book for holiday or bed-table. A lay account of themselves is always educative to doctors; and the many anecdotes, digressions, and comments on the life that ended so abruptly in 1914 are stimulating to read.

Notes on Books

Living Together Again, by PHOEBE D. BENDIT and Dr. LAURENCE J. BENDIT (Gramol Publications, Ltd., 60, Broadway, Chesham, Bucks), is a most opportune book, and being priced at only 2s. 6d. is within the reach of all whom it concerns. This is important since those who perhaps find it most difficult to resume satisfactory family relationships after long separation are those whose economic status, with the consequent difficulties of finding suitable homes and conditions of life, makes it impossible to find money or time for the study of much literature dealing with their peculiar problems. For the same reason the advice and explanations given them must be simple, easily assimilated, and amply illustrated by examples from "the human casebook." The authors have succeeded admirably in their task, and those who are experiencing the inevitable difficulties of readjustment will find their own difficulties illustrated by the numerous stories of the Johns and Janes, the Williams and Marys, which are so well told. It is easy to say that patience, tolerance, and understanding are all that is wanted, but it is necessary for people to see just how they themselves are to exercise these virtues. Also they must realize that many of their present difficulties arise not only from the present circumstances but from old tendencies and habits of mind which have existed in themselves and their partners even perhaps since childhood. The present state of affairs is indeed new, but here, as in everything else, *plus ça change, plus c'est la même chose*. Doctors are constantly being called upon to advise these newly united families in their difficulties, and they would do well to study this little book themselves and tell their patients to read it.

Public Baths and Health in England, 16th–18th Century, is published at Baltimore by the Johns Hopkins Press ($1 50). Dr. C. F. MULLETT, the diligent author of this essay on the English balneology of some two centuries, quotes from a bibliography of 238 papers on the subject. Continental wars and international unrest during the sixteenth to eighteenth centuries caused English watering places to boom, especially among fashionable and wealthy folk. A ritual of bathing emerged. Laymen and physicians alike debated the merits of hot and cold baths and their curative qualities. Although in the 1620s Dr. Tobias Venner railed against the number of unlearned empirics and quacks of all kinds who extolled their baths, disgracing the medical profession by their "mountbankery," there was little or no attempt at scientific analysis of the waters and their medicinal effects. This essay gives a good description of early attempts to establish the whole system of balneology.

The fourth edition of Prof. ALBERT KUNTZ'S excellent *Textbook of Neuro-Anatomy* (Baillière, Tindall and Cox; 32s. 6d.) follows the pattern of earlier editions. Each chapter is clear and ends with a summary and an adequate bibliography. There is a diagram on most pages and everything has been done to present the anatomy of the nervous system in a straightforward way. It is not difficult to divorce structure from function, and although Prof. Kuntz has been concerned with anatomy he has presented it in such a way that the purpose of the form is always evident. The subject is related to physiology and to the understanding of clinical signs, and in the 26 chapters, besides many with such usual titles as "The Pons" or "Long Conduction Pathways," there are others on "Nervous Integration," "The Functions of the Cerebral Hemispheres," and "Laboratory Study." It would be difficult to conceive a more comprehensive book of its size for the senior student.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY OCTOBER 26 1946

THE CAPITATION FEE

Insurance practitioners were last month[1] asked to consider a recommendation by the I.A.C. to the Panel Conference that they should place their resignations from the Insurance Service in the hands of the I.A.C. to be used at its discretion

> "unless the Minister is willing fully to apply the Spens Report to the current capitation fee, with effect at least from January 1, 1946, or, failing agreement, to refer to the Spens Committee or a representative section of that Committee, or other agreed independent body, the question of the interpretation of the Spens Committee Report in relation to the current capitation fee, both parties agreeing in advance to accept the findings."

The I.A.C. had already in July[2] criticized the Minister of Health's offer of 12s. 6d. as "gravely inadequate." At the invitation of the Minister, representatives of the Committee met officials of the Ministry on October 10. Sir William Douglas, the Secretary of the Ministry, attended a meeting of the I.A.C. on October 17 and on the next day sent a letter to the Secretary of the B.M.A. (printed in this week's *Supplement*) in which he stated that the Minister was "willing fully to apply the Spens Report to the current capitation fee with effect from January 1, 1946, the increase of 2s. being regarded as a payment on account." The Minister invites the I.A.C. to enter discussions on the Report forthwith "with special reference to the current capitation fee." It is promised that the discussions will be conducted "expeditiously." The I.A.C. decided to recommend the Panel Conference at its meeting on October 24 to accept the Minister's proposal. We go to press before the Conference meets and therefore in ignorance of the Conference's decision. While waiting for this we may note that the Chairman of Council hails this concession of the Minister as a victory for the insurance practitioners of this country. It does indeed show that when the medical profession takes a firm stand on an unambiguous point of principle and fact it can compel consideration of its case. Without prejudging the outcome of the Panel Conference on Thursday it may be helpful to review the events preceding the retreat of the Minister from a position which he seemed at one time to hold tenaciously.

In 1939 the capitation fee was 9s., but insurance practitioners were seriously dissatisfied with much of the evidence which led a Court of Inquiry to fix the fee at this level. In 1942 the figure was increased to 9s. 9d. to meet increased expenses and the situation created by the inclusion in the N.H.I. scheme of non-manual workers with an income of up to £420 a year. Another 9d. in December, 1943, brought the capitation fee to 10s. 6d. It may be recalled that in 1920 and 1921 the capitation figure was 11s. The Insurance Acts Committee did not cease in the early days of the war to voice the complaints of insurance practitioners about the inadequacy of the payment for their work, and in response Mr. Ernest Brown, then Minister of Health, promised that when the war was over the whole question would be investigated "from the ground up." In May, 1944, the Ministry of Health proposed the appointment of the Spens Committee, and the Secretary of the Ministry stated in a letter to the British Medical Association that the results of the proposed inquiry into the remuneration of general practitioners "would be equally valuable and usable no matter what forms of public medical practice may continue or may come into being, under the present law or under any future legislation." In a further letter in July of the same year, the Secretary of the Ministry said that the findings of the proposed Committee would apply "irrespective of the institution of any National Health Service and would directly bear upon existing conditions in the present National Health Insurance scheme." Believing in these assurances the profession agreed to co-operate in setting up the Spens Committee, whose Report was issued in May this year and approved by the profession. The I.A.C. thereupon asked the Minister to apply the findings of the Spens Committee to "existing conditions in the present National Health Insurance scheme." But the Minister refused to do this without at the same time relating the findings of the Spens Committee to the proposed new Health Service. This was in flat contradiction to unambiguous statements previously issued by his Department, and the Insurance Acts Committee therefore refused to negotiate on the basis suggested by the Minister. The Minister, it may be noted, accepted the recommendations of the Spens Committee but would not apply them forthwith to the current capitation fee. But the I.A.C. stood firm, and by his action last week the Minister has acknowledged the error of his ways.

The Spens Committee concluded that in the majority of cases the net income of a general practitioner in 1939 was inadequate to the extent of £200 a year. The only way in which the practitioner in 1939 could have adjusted his income to the level considered to be a meet reward for the work done would have been through an increase in private fees. It is clear that the doctors themselves kept private fees to a level considered to be a fair remuneration for the work they did. Therefore the cause of the inadequacy of income declared by the Spens Committee is the low capitation fee, and the deficit agreed on can be made good only through an adjustment of the capitation fee. In arriving at what the increase should be, consideration must also be taken of the new class of insured persons, the increase in practice expenses, and the altered value of money. The Spens Committee based its recommendations in terms of the 1939 value of money. There is a prevalent misconception that it recommended a capitation fee of 15s. in the N.H.I. scheme. This is not the case. The Spens Committee estimated the outside cost of its proposals for the future to be "15s. a head to provide for the remuneration of general practitioners on the assumption that the number of persons covered by a publicly organized service is

[1] *British Medical Journal*, 1946, **2**, 395.
[2] *British Medical Journal Suppt.*, 1946, **2**, 31.

45,000,000" (paragraph 19 of the Spens Report). Again we would emphasize that this figure was arrived at in terms of the 1939 value of money. If, therefore, the Panel Conference has decided that the I.A.C. should negotiate with the Minister on a revision of the capitation fee in terms of the Report of the Spens Committee, it will no doubt insist upon a correct interpretation of the Committee's recommendations.

INFERTILITY

About 10% of marriages in this country are childless—and that without the wishes of the partners concerned. In many others fertility is so low that only one or two children are produced in the course of many years. Some 40,000 to 45,000 of what will ultimately prove to be fruitless marriages take place in England and Wales each year. The figure for the United States of America is about 150,000.[1] Infertility is not necessarily on the increase, but it is more freely admitted. It is so common as to constitute a problem of national importance, although the medical practitioner sees it more often as a problem facing individuals and knows only too well the anxiety, unhappiness, and bitterness that childlessness can cause.

The investigation and treatment of infertility has, in recent years, received considerable attention, and in many centres special clinics are devoted to it. It is no longer enough to dilate the cervix for hypothetical stenosis and to carry out curettage for non-existent "endometritis." Complicated and time-consuming tests of all kinds are often necessary before the cause can be determined and a decision made about treatment. The published proceedings of a conference on the diagnosis of sterility, held in New York in January, 1945,[1] provide a comprehensive and critical review of most of the present-day methods of study of these cases. The subjects of the papers vary from the essentially practical, such as history-taking and tubal patency tests, to the more academic, such as the cause and significance of haemospermia, and include the controversial, such as testicular biopsy. The value of the book is enhanced by verbatim reports of the comments of the many authorities who took part in the discussions after each paper. Both these and the main speakers do not hesitate to report negative findings, and their factual statements and cautious interpretations should act as a corrective to those whose enthusiasm for some special investigation or line of treatment is not always matched by a scientific outlook and due sense of proportion. The paper on the endometrial cycle by Hertig is remarkable for its fine photomicrographs of the different phases, of a 7½-day human ovum previously reported, and also a new 4-day-old human ovum which was found lying free in the uterine cavity.

There is now general agreement that 40 to 60% of the male partners of infertile unions can be shown by semen analysis to have impaired fertility of varying degrees, and this has been emphasized recently in this *Journal* by Jeffcoate.[2] American workers mostly give the higher figure, and workers in this country the lower, the difference being explained by the fact that the former demand a higher standard for "normal" seminal values. As long ago as 1904[3] Haggart wrote: ". . . one-third to one-half of all childless marriages are due to the male. . . ." This statement, which passed unheeded or was not accepted for so long, can now be regarded as not exaggerating male responsibility to any extent, and Simmons[1] is probably right when he says: "Detailed semen study is the most important single clinical detail in the investigation of infertile marriage."

The history of the study of infertility is marked by cycles in each of which the emphasis has been placed on a different causal factor, real or imaginary, sometimes accompanied by a new method of investigation. Salpingography, first attempted independently by Cary[4] and Rubin[5] in 1914 and 1915, and tubal insufflation introduced by Rubin[6] in 1920, have, on the whole, both stood the test of time and experience. Others have not, however; for instance, estimation of the vaginal *p*H, despite the fact that precoital douches of sodium bicarbonate solution appear to facilitate conception in some cases, has fallen into disuse since it was realized that the vagina never achieves a degree of acidity which is incompatible with fertility. The recognition of the occurrence of anovular menstruation was followed by a phase in which the place of infrequent ovulation as a cause of infertility was probably overstated, although Israel[1] still rates it as high as 15%. Its importance is in any case difficult to assess, because menstruation without ovulation, even if demonstrated, may be only a temporary or intermittent phenomenon. Nevertheless some test for the occurrence of ovulation is necessary in the investigation of an infertile woman when no other obvious cause is found, and moreover, from the standpoint of treatment, it is important for a woman to know when she is ovulating. The value of daily temperature records in this respect is borne out by the experience of Tomkins.[1] A recent trend is to place emphasis on the penetrability of cervical mucus by spermatozoa (see article by Mary Barton and Wiesner at page 606), and the postcoital test, usually associated with the name of Sims or Huhner, has been revived and extended. An "in vitro" modification, usually called the Kurzrok-Miller lytic test, is to study the behaviour of spermatozoa brought in contact with cervical mucus on a microscope slide. This has the advantage of making it possible by controlled experiments to say whether it is the mucus or the spermatozoa which are at fault in a case where penetration does not take place. In contrast to the views of some of the enthusiasts for tests of this type, Williams[1] concludes that they are of little practical value and that when there is cervical opposition to the entrance of spermatozoa, then a pathological condition of the cervix, recognizable by ordinary clinical examination, is present.

The study of infertility has naturally involved a study of fertility and has undoubtedly resulted in a considerable increase in knowledge regarding the physiology of both male and female genital systems. Unfortunately, however, more accurate diagnosis has not been attended by much improvement in the results of treatment. Of all cases—and these presumably include those in which all that is required

[1] *Proceedings of the Conference on Diagnosis in Sterility*, 1946, edited by E. T. Engle. Charles C. Thomas, Springfield, Illinois: $5.00.
[2] *British Medical Journal*, 1946, **2**, 185.
[3] *Reference Handbook of Medical Science*, 1904, Wm. Wood and Co., New York.
[4] *Amer. J. Obstet. Gynec.*, 1914, **69**, 462.
[5] *Surg. Gynec. Obstet.*, 1915, **20**, 435.
[6] *J. Amer. med. Ass.*, 1920, **75**, 661.

is instruction in the physiology of reproduction or the removal of some simple bar to coitus—Cary,[1] one of the pioneers in the field, estimates that only one-third can be cured. "Cure," however, is a word not easily applied to this condition. The occurrence of a pregnancy after some form of treatment does not necessarily imply any relationship between the two. Indeed all gynaecologists have had frequent experience of cases where a woman admitted for treatment of sterility has proved to be already pregnant. And what is the criterion of a cure of infertility? A single pregnancy, though gratifying to all concerned, cannot be taken to mean that the fertility of either partner is raised permanently or even temporarily. It may be only a chance occurrence after which the partners of the marriage continue to suffer from infertility, though they do not always complain of it, being satisfied to some extent by the one child.

While there is no doubt that cervical dilatation, treatment of cervicitis, tubal insufflation, correction of retroversion, precoital douches of various kinds, etc., have in some cases a therapeutic value, the treatment of infertility is on the whole unsatisfactory. Above all is this true when fertility is so grossly impaired as to constitute, for all practical purposes, sterility; when there is complete obstruction in either the male or female genital tract, or when the production of spermatozoa or ova is totally suppressed. Operative measures for the relief of occlusion of the Fallopian tube, vas, or epididymis are not often successful. However, these lesions are nearly always caused by gonorrhoea, tuberculosis, puerperal infection (especially post-abortal) or pelvic peritonitis secondary to appendicitis, and it is not unreasonable to hope that in the future they will be prevented. If they are, then the total number of cases of infertility and sterility will be reduced by one-third. Also prophylaxis may well have something to offer in those cases when spermatogenesis or ovogenesis is at fault, for there is evidence to show that these are sometimes caused not only by mumps but other acute infections and by general ill-health and endocrine disturbances in childhood and adolescence.

RESEARCH IN CHRONIC RHEUMATISM

As long ago as 1922 the Ministry of Health conducted a sample survey among insured workers to determine the incidence, and cost, of the group of complaints commonly called rheumatism. It was found that this group was responsible in England and Wales for one-sixth of the industrial invalidity, for a yearly expenditure on sickness benefit of £2,000,000, and for an annual loss of 3,000,000 weeks of working time. More recently it has been estimated that approximately one-third of the payments by approved societies under the National Health Insurance scheme are made in respect of conditions labelled "chronic rheumatism." While its severity ranges from slight inconvenience to dire crippling, the prevalence of the disease in adult and early adult life—during the productive and reproductive years—presents an enormous and costly burden, with serious effects on society as a whole, on industry, on the home, and on family life.

The Medical Advisory Committee to the Ministry of Health recommended in 1945 that a number of diagnostic and research centres should be established for the study of chronic rheumatism and for the improvement of existing facilities for diagnosis and treatment. Improved methods of diagnosis and treatment, though they may lead to the alleviation of much suffering, will not in themselves bring about any diminution in the incidence of the disease. This can result only from fundamental research into the causation and nature of the disease process. For this reason it was proposed that the special centres should be located in university medical schools and teaching hospitals, where resources are available for a combined attack on the disease in all its forms.

A rheumatism centre of the kind contemplated by the Ministry is to be established at the University of Manchester, with the assistance of a grant from the Nuffield Foundation of £100,000 spread over ten years. In broad outline it is proposed to establish a diagnostic and research centre at the teaching hospital—the Manchester Royal Infirmary—to deal with short-stay in-patients and out-patients who will be referred to this clinic from peripheral clinics in the region. For long-stay in-patients there will also be a clinic at a base hospital near the centre, provided by the Manchester Public Health Committee, and a second base hospital in the country—the Devonshire Royal Hospital at Buxton. At the base hospitals lengthy investigations will be carried out and problems of rehabilitation and resettlement will be studied. This scheme will ensure ready access to a very large number of cases of the disease, especially in its early stages; this is a pre-requisite for any successful attack upon its causation, diagnosis, and treatment. At the centre the work will cover two main fields: the clinical, sociological, and industrial aspects of the disease, and the fundamental study of the disease process by pathological, bacteriological, and biochemical methods. The clinical work will be under the direction of a physician who will have the full co-operation of the departments of orthopaedics and physiotherapy of the Manchester Royal Infirmary as well as of the University Dental School. The social aspects of the disease, and its industrial implications, will be studied in co-operation with the University Department of Industrial Health. The basis of all fundamental research into the causes of diseases of the bones and joints is the study of bone and joint pathology; this study will be under the direction of a whole-time pathologist who is an expert in this field.

An important element in the organization of the health services of the area will be the diffusion throughout the area of the expert knowledge gained at the university centre and the bringing of the physicians and surgeons of the peripheral area into closer relation with the medical school. An ultimately wider diffusion will be achieved through the medical school, since its undergraduates will grow up with a better general knowledge of the subject.

PRESSURE DRESSINGS FOR BURNS

On theoretical grounds it is possible to advise conclusively that the application of a pressure dressing to a burn will limit the extravasation of plasma into the burnt area and will consequently prevent part of that diminution of blood volume which is largely responsible for the shock that follows burning. Moreover, pressure dressings have been employed by plastic surgeons for years to increase the likelihood of a skin graft's "taking." The advantage of applying a pressure dressing to a burnt area has now been measured experimentally by Cameron and others[1] in goats, and by Glenn, Gilbert, and Drinker[2] in dogs.

Already in 1945 Cameron and his fellow-workers[3] had shown that prompt application of pressure bandages to

[1] *J. Path. Bact.*, 1946, **58**, 1.
[2] *J. clin. Invest.*, 1943, **22**, 609.
[3] *J. Path. Bact.*, 1945, **57**, 37.

the severely burnt limbs of goats retarded the loss of plasma from blood vessels, diminished haemoconcentration or prevented its occurrence, and favourably influenced the clinical condition of the animals. The same team of workers have now shown by carefully controlled experiments on the lower limbs of goats that the healing of a compressed burn is greatly accelerated and that the increase in the rapidity of healing is independent of sepsis or asepsis. The pressure is applied by the application of quick-setting Gypsona plaster bandages closely wrapped round the burnt limb to leave a considerable overlap beyond the burn margin; a layer of dry sterile gauze separates the plaster from the skin. The control goats received no plaster application but were dressed by sterile gauze kept in position by elastoplast. The animals in both series had their dressings changed frequently and were fully loaded with sulphathiazole. The mean healing times for the two groups were 39.5 ± 1.8 days for the pressure-treated goats, and 63 ± 5.7 days for the controls. This reduction is significant.

The time of application of pressure is of some importance. If it is delayed for more than four hours after the burn is sustained healing is not accelerated, so in clinical practice the pressure should be applied if possible within this period. The duration of maintenance of pressure is equally important. There appears to be a critical phase which lasts for several days after burning and during which removal of the plaster case occasions severe oedema of the burnt area and delay in healing; the pressure should therefore be maintained for some nine days. After nine days it seems of little moment whether it is continued until the sixteenth or the thirtieth day.

On purely theoretical grounds Bingham and Logie independently employed plaster immobilization for burnt extremities sustained in a forward area in Libya in 1942, and there was a clinical impression then, statistically unsupported, that healing was accelerated, the patient's comfort improved, and the general condition ameliorated by this simple measure. However, there is argument now for the widespread application of plaster-of-Paris pressure to burns recently sustained.

DUST REDUCTION IN MINES

Among the most important measures for the prevention of pneumoconiosis in miners are the use of water for dust reduction and improvements in ventilation. Water can aid in the reduction of dust in three ways: (1) by suppressing dust already in the air; (2) by allaying dust and thus preventing its dissemination; and (3) by preventing the formation of dust. The influence of increased ventilation on dust concentrations is obvious: if dust production remains constant an increase in the volume of air passing reduces the concentration of the dust; and if increased ventilation is combined with the appropriate use of water still greater reductions in dust concentrations can be achieved.

During recent years much work has been done in Great Britain on the use of mist projectors in suppressing dust, especially at loading points and after blasting. For the effective removal of dust by this method it is essential that the water be discharged into the air in the form of a finely atomized spray; a coarse spray is relatively ineffective. Dust concentrations in the air of mine roadways are much reduced by the periodic application of water to the roads. For several years past wet-drilling has been recognized as an important factor in the reduction of dust formation in rock drilling; and it has been shown in Great Britain and the United States that in coal mines and metalliferous mines substantial reductions in dustiness can be brought about by spraying hewn or blasted rock and coal before they are loaded. During the last few years, in the anthracite mines of South Wales, the infusion of water into the coal face before blasting has done much to reduce the concentration of dust at that point.

In two recent papers Tebbens and Tabershaw[1] have given further evidence of the effects of the use of water and increased ventilation on the dustiness of mine air. The data were obtained from two surveys of concentrations of air-borne dusts in a group of haematite mines. At the time of the first survey water was available for use in drilling, but owing to prejudice against it most of the drilling was done dry; and only limited amounts of water were used in dumping ore. In the interval between the two surveys the widespread use of water for dust control was introduced. Drillers were educated and persuaded to use water; in ore-handling operations water was used to wet the broken rock, and the main haulage-ways and headings were regularly damped.

These measures proved very effective. They reduced the dust exposure of drillers by about five-sixths, and substantially reduced the exposure of other workers. The dustiest operations in these mines are those connected with loading "muck," and although on this work the use of water reduced the dust concentrations by more than one-half further reduction was necessary to render the work reasonably free from the risk of silicosis. The desired result was obtained by providing increased ventilation. In the stopes where this work was carried on the average dust concentration was 153 million particles per cu. ft. (28,300 c.cm.) when the quantity of air passing was below 1,000 cu. ft. per min., but when the air supply was raised to 8,000 cu. ft. per min. the average dust concentration was reduced to 25 million particles per cu. ft., which was regarded as the maximum safe concentration for rock containing 15–20% pure silica.

The Association of Anaesthetists of Great Brtiain and Ireland are next week celebrating the centenary of the first administration of ether in Great Britain. On Wednesday, Oct. 30, the Princess Royal will at the Royal College of Surgeons of England unveil a plaque commemorating four pioneers in anaesthesia. This will be followed by a reception by the President and Council of the College. On Oct. 31 the John Snow Medal will be presented to Lieut.-Col. H. W. Featherstone, Major L. G. Morrison, and Squad.-Ldr. E. A. Pask, and in the evening there will be a dinner in the Great Hall of Lincoln's Inn by kind permission of the Masters of the Bench. On Oct. 29 to Nov. 1 there will be an exhibition of anaesthetic apparatus, including Mr. A. Charles King's museum, in the Council Room of the College of Surgeons.

At a special meeting of the Liverpool Medical Institution held on Oct. 19 with the President, Dr. G. F. Rawdon Smith, in the chair, honorary membership of the Institution was conferred upon Dr. A. E. Barclay, F.R.C.P., Sir W. Allen Daley, M.D., F.R.C.P., Dame Louise McIlroy, M.D., F.R.C.P., Prof. Charles McNeil, M.D., F.R.C.P., Dr. Ivan W. Magill, and Sir Alfred Webb-Johnson, P.R.C.S. The six new honorary members were introduced by Dr. Robert Coope, acting as public orator.

Dr. J. C. Spence will give the Charles West Lecture on Tuesday, Nov. 19, at 5 p.m. at the Royal College of Physicians of London, Pall Mall East. Subject: "The Care of Children in Hospital."

---

[1] *J. Industr. Hyg.*, 1946, **28**, 100 and 104.

ANAESTHESIA CENTENARY CELEBRATIONS

EXHIBITION AT WELLCOME MUSEUM

The centenary of the first surgical operation to be performed under general anaesthesia was celebrated in London on Oct. 16 by the opening of an exhibition at the Wellcome Historical Medical Museum in Euston Road. Dr. E. Ashworth Underwood, director of the Museum, presided, and Lord Moran gave an address.

Lord MORAN said that for ages people had tried to produce something which would permit of operations being done without pain, but the nineteenth century was reached before anything really happened at all. And not only was anaesthesia long in being discovered, but when it was announced it seemed to hang fire, first because the drugs were not standardized, and secondly because religious scruples interfered a good deal with their use. Even in Queen Victoria's reign the scripture was cited, "In sorrow shalt thou bring forth children," and it was held that there should be no interference with that divine plan. Among preparations for the anaesthetic age were Priestley's contributions to pneumatic chemistry—the study of gases—and Humphry Davy's production and use of "laughing gas." Then there was Hickman's work in the eighteen-twenties which showed surgical anaesthesia by inhalation to be a practical proposition. But it was left to Wells and Morton to bring the thing about. Wells, apparently, did everything that was necessary, but Morton had the power, to use the modern phrase, to "put it across," and his was the name that 100 years later was associated with this development. Lord Moran added one or two general observations. Progress in medicine, he said, had never been up a smooth incline, but always by fits and starts, with long periods of stagnation and then a sudden jump forward. In spite of what he had said about anaesthesia's hanging fire, its discovery was a gift of everlasting mercy to mankind. It was really no accident, but part of the great crusade of the nineteenth century to improve and humanize the conditions under which people lived and worked and suffered. He looked with profound satisfaction upon the fact that the democracies of Britain and America had taken the chief share in this humanizing process.

The exhibition, which Lady Moran then declared open, is arranged in a most instructive fashion by means of originals, reconstructions and models, photographs and illustrative diagrams, and a wealth of books. One showcase illustrates the knowledge of narcotic and stimulating drugs in primitive times and among the Greeks and Romans; another the days of surgery without anaesthesia; and yet others the therapeutic uses of vapours and gases and ether frolics, the work on inhalation anaesthesia, the development of the anaesthetic uses of chloroform, the introduction and development of nitrous oxide anaesthesia, together with much literature on the subject, including old copies of *Punch* and the *Illustrated London News* showing the early popular reaction to anaesthesia.

Three Periods of Anaesthesia

On the same day a meeting of the History of Medicine Section of the Royal Society of Medicine was held, when Prof. CHARLES SINGER, who took the chair, spoke of anaesthesia in the pre-anaesthetic period (before 1846) and other speakers dealt with the developments in the second half of the nineteenth century and in the first half of the twentieth.

Prof. Singer said that it was an error to suppose that before 1846 operations were always performed on the fully conscious. Narcotics and analgesics were known very early; they were mentioned in Egyptian writings and in the Hippocratic collection. The narcotic drugs of antiquity were mainly of the natural order *Solanaceae*, to which belonged not only mandrake and belladonna, but also the potato, the tomato, and tobacco. The main narcotics available to the people of the Middle Ages were opium, mandrake or belladonna, chiefly the leaves, and hyoscyamus or henbane. The best literary account of the surgical use of narcotic drugs dated from the fourteenth century and was given by Boccaccio in his *Decameron*, in which there was an account of an anaesthetic proposed for the amputation of a leg. Hypnotism was first used in surgical operations by John Elliotson (1791–1862), professor in the University of London and president of the Royal Medical and Chirurgical Society. A medical observer, Robert Kinglake, had left an account of the effect of nitrous oxide on Humphry Davy and on a number of other persons, and the speaker read some of these extracts. Kinglake afterwards experimented with ether, but did not suggest it for anaesthetic purposes.

Dr. BARBARA DUNCUM read a paper on the development of inhalation anaesthesia down to the turn of the century. She mentioned that by 1850 anaesthetic practice had assumed certain distinctive characteristics in different parts of the world. In the northern States of America ether was used; the southern States traditionally followed the example of Paris in medical matters, and in Paris chloroform was administered from a folded cloth, according to Simpson's directions. The rest of Europe also followed Parisian methods, and in Scotland, of course, Simpson's method reigned supreme. In England a very different state of affairs obtained. Mainly, no doubt, because of John Snow's strong influence, the English from the first considered the giving of an anaesthetic to be a specialist's job, whereas elsewhere it was not considered necessary to employ an expert anaesthetist and the task of administration was usually relegated to a junior house surgeon. Simple and effective as Simpson's method of chloroform anaesthesia was, the English, by the beginning of 1848, had already devised a number of more or less elaborate chloroform inhalers, and Snow was controlling the anaesthetic mixture by regulating the temperature of the vaporizing chamber by a water jacket. Snow's portable regulating chloroform inhaler served his contemporaries as a model until the introduction of Clover's chloroform apparatus in 1862. Clover, after Snow's death in 1858, had quietly become recognized as the leader in anaesthetic practice, and chiefly through him a committee of investigation of the Royal Medical and Chirurgical Society carried out experiments on ether and chloroform which resulted in a new and more flexible attitude towards anaesthetic questions in British practice, with the realization that no single agent could be expected completely to satisfy every requirement.

Dr. JOSEPH BLOMFIELD followed with a recital of the various steps in the development of anaesthetics since 1900. He mentioned the use of ethyl chloride in America, France, and Germany in the early years of this century, the use of prolonged nitrous oxide and oxygen in America about 1913, the practice of synergistic analgesia in America about 1923, and the work of Leonard Hill and Dale on the advantage of N_2O under pressure. About 1925 explosion dangers from static sparks were very much in the public mind, and precautions were taken. Dr. Blomfield also touched on the introduction of the new basal narcotics, and closed with some reflections on the more co-operative and understanding attitude of the patients to-day as compared with their ignorant fears of anaesthesia in earlier days.

First Use of Inhalation Anaesthesia in Britain

Finally Dr. E. ASHWORTH UNDERWOOD supplemented his paper in the *British Medical Journal* of Oct. 12 by giving the details of what appears to be the first instance of ether inhalation for anaesthesia in this country. His attention was called last year to a remark by Mr. J. W. McDougal, secretary and treasurer of the Dumfries and Galloway Royal Infirmary, in an address to a rotary club, that "the infirmary was the first hospital in Europe to use general anaesthetics for its major operations, and that was before [the anaesthetic effect of] chloroform was discovered." Dr. Underwood thereupon wrote to Mr. McDougal, who replied that in the late autumn of 1846 Dr. William Fraser, a native of Dumfries, who was a ship surgeon, was visiting the infirmary while on leave, when a casualty with a fractured limb was brought in. The two surgeons of the infirmary, James McLauchlan and William Scott, asked Fraser to have a look at the case. Amputation being decided upon, Fraser, who had heard of the sulphuric ether discovery (probably from Morton of Boston, whom he knew) persuaded the surgeons to try it out on the case in question. By means of an apparatus hastily improvised, constructed by the three surgeons, the injured man was enabled to inhale a quantity of sulphuric ether vapour while the operation was performed in a painless and satisfactory manner. In a *Visitors' Guide to Dumfries* (1871) Dr. Underwood also found an account of this incident, and it was added that in 1868 Sir James Y. Simpson, speaking on the subject at a conversazione at the Royal College of Surgeons of Edinburgh, had mentioned

this fact and said that after the ether had been first used at Dumfries it was next employed by Mr. Liston, the eminent surgeon of London. This meant that the operation preceded that of Liston, that is to say, that it took place before Dec. 21, 1846. Mr. McDougal said the "late autumn," which implied a date in November. From a study of the hospital records of amputations it seemed that the operation must have been performed on or before Nov. 11, 1846.

NATIONAL INSTITUTE FOR THE DEAF

The National Institute for the Deaf had to close down a certain proportion of its activities during the war, but it is now contemplating a vigorous resumption, as was shown by the enthusiasm at its annual general meeting held in London. The DUKE OF MONTROSE (President of the Institute) said that in this first full year of peace they were determined to bring the cause of the deaf into the front line. It was estimated that there were in this country a million people deaf or with subnormal hearing. It was good news that as part of the National Health Service scheme a standard aural aid was to be provided for all which would be free of charge.

The Government's Proposed Hearing-aid

Lord WALKDEN (a member of H.M. Government) said that as a result of research by the Electric Acoustics Committee of the Medical Research Council an electric hearing-aid had been produced which had been accepted by the Government and was to form part of the provision under the scheme for a National Health Service. This would certainly be available in 1948, though he could not say in which month of that year. Both the instrument itself and the subsequent servicing would be available freely for all who needed it. The deaf would be enabled to have the benefit of consultations at special clinics in suitable centres, where experts would be able to say whether they could be helped by treatment; if they could be so helped the treatment would be afforded, again free of charge, and if not, the instrument would be provided. The outstanding difficulty in providing the instrument was to obtain suitable labour —the labour of the skilled instrument maker. The minute valves of the apparatus, much finer than those used in wireless sets, were difficult to produce and to maintain, but he was sanguine that full success would be achieved by the year after next.

Mr. R. SCOTT STEVENSON, who was warmly greeted as the new chairman of the executive committee of the Institute, said that he hoped the Government did not imagine that the problem of the deaf and the deafened would be solved by the provision of a universal hearing-aid. That was by no means the case. To begin with, there were many people to whom a valve amplifier would be of no value. In some types of deafness the simple ear trumpet was more successful than far more elaborate apparatus. There were many to whom no hearing-aid of any kind would be of use, and for them lip-reading and sign language was the only method of communication. Probably the greatest single need of the deaf in this country was not a hearing-aid but the provision of more teachers. Although the education of the deaf and dumb was now a statutory obligation, it was saddening that there should be only one school in existence for their higher education, and that that single grammar school should be attended by comparatively few children and should be in financial difficulties. The provision of hearing-aids, good as it was in itself, was not the end of the matter. He went on to pay a tribute to reputable hearing-aid manufacturers who had done a good job of work in this country, and he hoped the Government would not overlook the desirability of consulting with them in the production of their aid. If the Institute had only been able to get the component parts during the war it would itself have provided, through a group of hearing-aid manufacturers, a standard aid at a cost of not more than £10. The Institute was intending to reissue its list of approved hearing-aid manufacturers, but he explained that approval was limited to their ethical practice in selling and did not cover necessarily scientific approval of the aid. It was also hoped to set up a technical laboratory under the Institute's auspices for testing and repairs. In many quarters, again, there was a tendency to lay too much stress on the size of the aid. No doubt smallness and inconspicuousness were useful characteristics, but efficiency outweighed them, and he would rather have an aid the size of a portmanteau if it worked better. He wished to make it plain that those who had the interests of the deaf at heart were far from being ungrateful to the Government—which had done more for the deaf than any previous Government—but he begged them again not to take it for granted that the provision of a valve amplifier was all that needed to be done for the deaf.

Otology in a National Health Service

Lord LEVERHULME said that the Institute was fortunate in having secured Mr. Scott Stevenson as its new chairman. It was a happy coincidence that during his service in the R.A.M.C. Mr. Stevenson was billeted with the Duke of Montrose, who interested him in the work of the National Institute. They looked forward to a period of great vigour under his leadership. Lord Leverhulme also mentioned that Lord Cecil had put down an amendment to the National Health Service Bill in the House of Lords, the purport of which was that whatever was provided for an ophthalmic service should be also provided for an otological one. Other speakers included Mr. EDWIN EVANS, M.P., and Miss MARGARET RAWLINGS. A recent broadcast on behalf of the Institute by this accomplished actress brought in more than £2,500, to which was subsequently added a gift of £500 from the Goldsmiths' Company. The Institute, whose National Headquarters are at 105, Gower Street, London, W.C.1, has devoted £1,000 of the sum received to the training of qualified welfare workers for the deaf and dumb.

MEDICINE AND THE STATE

In the course of an address given in Liverpool Cathedral on Oct. 20 Sir ALFRED WEBB-JOHNSON, *President of the Royal College of Surgeons, said:*

For two things our hearts may well be troubled. One is lest the great administrative machine which is to be set up in connexion with the National Health Service may dim the high ideals of our profession, or mar the close relationship which should always exist between doctor and patient. The other cause for disquiet is lest scientific discoveries be used for man's hurt and ultimate destruction, instead of being devoted solely and entirely to his benefit and improvement.

It is the tradition of our calling that the poorest and humblest has just as great a claim on our services as the highest and most affluent. The measure of their need is the measure of the help which it is our duty and privilege to render. Thus it was that Sir Frederick Treves, when his Sovereign, King Edward VII, thanked him for his life-saving attentions, was able to reply with pride: "Sir, you have had as much care and skill in your illness as the humblest of your subjects." Such is the service that it is our privilege and duty to render, but we have been only too conscious of the limits of our ability—limits imposed by lack of adequate facilities. We have known that there were serious gaps in our service, and have realized that those gaps could only be filled with the help of the State. The State is about to take a great part in British Medicine. This is not surprising, for medicine is of wholly unique importance for the very existence of social life. But, "As the master builder must care for the whole building—so he that undertaketh to set it out (and use it) must seek out fit things for the adorning thereof." This will be our special and immediate task.

Some Essentials of Service

We must first ensure that the conditions of service are such as to allow intellectual freedom, and to give character as much chance as cleverness. We must avoid the development of Molière's type of doctor, who thought it more honourable to fail according to rule than to succeed by innovation. We must guard against uniformity, for the highest products of the human mind are the outcome of freedom and variety rather than of uniform organization. Independence, which inspires fearless advice, must be preserved. In fact, if any of the essential freedoms of a great profession are threatened, then, in the interests of the people, there must be revision of the plan. Even when a system has been formed there may still be much to add, to alter, and to reject.

The doctor's work is primarily a personal service, and his calling exacts the utmost that man can give—full knowledge, exquisite judgment, and skill of the highest, to be put forth, not at any self-chosen moment, but daily at the need of others. But illness is essentially a personal event. It consists of the individual himself. The patient is not limited by his outer covering. His surface is not his real frontier. A man may be more interested in his environment than in his own body. His position in the community or some work to which his passion drives him may appear to be of more importance than life itself. Thus it is that the family doctor has often to be his patient's confidant and friend. Then again, as Trotter said, "the well-equipped clinician must possess the qualities of the artist, the man of science, and the humanist, but he must exercise them only in so far as they subserve the getting well of the individual patient." He must feel directly responsible *to* his patient, not *for* him—to someone else. It is a hard doctrine, but none the less true, that this essential function of the doctor—the care of the given patient—may involve the foregoing of exactly scientific diagnosis, of the artistic perfecting of an operation, or even of the interests of society at large.

Dangers of a Comprehensive Plan

Those of us whose work lies in the hospitals must be prepared for changes under a new organization. We must see to it, however, that we carry into the national hospitals the same spirit which inspired us in the great voluntary hospitals. There we learned to scan gently our brother man—judging not, asking no questions, but meting out to all alike a hospitality worthy of the Hôtel Dieu, and deeming ourselves honoured in being allowed to act as its dispensers. We must keep the souls and individuality of our hospitals alive, for hospitals are human institutions. No rigid plan, without margin or elasticity, will suffice or succeed. Above all, the State must not try to control development too strictly, for hospitals are also scientific institutions, and the essence of science is change.

We know the dangers of a great comprehensive plan for a National Health Service. We must guard against them—and it is right and fitting that we should gather in this holy place on the occasion of the Festival of Saint Luke, the Beloved Physician, to dedicate ourselves anew to the high ideals of our calling.

Application of Scientific Discoveries

But medicine is a science as well as an art, and we are vitally concerned with the application of scientific discoveries for the benefit of mankind. In our own time inventions and developments have followed each other fast as falling leaves, and the great blessing is that the leaves from the tree of science have been largely for the healing of the people. Advances have been achieved by the method of experiment—the method which, beyond all shadow of doubt, is the most effective implement for the advancement of knowledge ever invented by man. Moreover, it satisfies man's inveterate instinct not to confide his weight to a branch until he has tested it.

The greatest discovery in modern medicine is the detection of the minute bodies which cause many diseases, and the means by which they are carried. Pasteur, Lister, and Manson are the rocks upon which the whole structure of our modern knowledge is built. They were men of humble piety and devout Christianity. So also was Ronald Ross, to whom belongs the honour of the actual detection of the mosquito as the carrier of the malaria parasite. We have but lately realized that we may be able to control or destroy these winged vectors of disease. Millions on millions of lives could be saved and the morale of native peoples raised by the prevention of malaria alone. The millions that are saved must be fed. They must be reckoned with. This will be a problem for future generations: our task and duty are clear. As Carlyle wrote: "Let a man do his work; the fruit of it is in the care of Another than he." And do we not read in the Book of Wisdom: "Glorious is the fruit of good labours"? But let us also heed these words of Carlyle: "Man, 'Symbol of eternity imprisoned into time,' it is not thy works, which are all mortal, infinitely little, and the greatest no greater than the least, but only the spirit that thou workest in, that can have worth or continuance."

That is the point—the spirit that thou workest in. Scientific discoveries are powers for evil as well as for good. Is it not time that we decided that their use for the wholesale and indiscriminate destruction of human life should be outlawed? It is not only physical and chemical knowledge that can be misapplied. It has even been suggested that biological discoveries might be used for bacterial warfare. Is it not more in accord with our traditions and ideals to follow the example of Jenner, who when England and France were at war sent Woodville to Paris to help to control an epidemic of smallpox which was raging in the French capital? To commemorate this humanitarian action there stands at Boulogne to-day a statue to Jenner inscribed: "A Edward Jenner—La France Reconnaissante."

It may be that man is at the cross-roads. Will he proceed higher and further, or will he bring about the catastrophic ending of the whole human story? It is for man to decide his own fate.

Correspondence

Geographical Distribution of Disseminated Sclerosis: A Request for Information

SIR,—Disseminated sclerosis is well known to be common in some countries (e.g., Switzerland) and very rare in others (e.g., South Africa). Its incidence varies also in different parts of a country, for it is more common in North than in South Switzerland. Investigations at present being carried out indicate that disseminated sclerosis is relatively common in England, and that patients suffering from the disease number two to four per 10,000 population. There seem, however, to be certain parts of the country where it is much more common than this, and others in which it is rarely if ever seen. Information regarding its geographical distribution is being collected here for research purposes, and if any doctor can give information regarding the local incidence of disseminated sclerosis or has been impressed by its frequency or rarity in his district, we should be grateful if he would communicate with us. Areas of the country where the disease does not occur are just as important as those in which it is frequent.—I am, etc.,

Radcliffe Infirmary (Neurology), Oxford. W. RITCHIE RUSSELL.

Errors in Regard to Goitre

SIR,—My attention has been drawn to a paper by Linnell, Keynes, and Piercy (Sept. 28, p. 449) appropriately entitled "Some Vulgar Errors in Regard to Goitre." I propose to confine myself to a criticism of paragraph IV, headed in fact correctly, "That no goitre should be considered toxic unless the basal metabolic rate is found to be above normal."

Let us deal first with the measurement of the basal metabolism. It is a relatively simple technique if it is done in the right way, but it has many pitfalls for the uninitiated. Du Bois (1936) has written an excellent monograph on the subject, and more recently (1944) I recapitulated certain essential criteria for obtaining an accurate and reproducible result on in-patients and out-patients. Using such well-known normal standards as those of Aub–Du Bois or Harris–Benedict, the range for normal people in England is 0 to minus 21. It is important not to confuse, as is so frequently done, a reading that is "within normal limits" with a reading that is "normal" for the individual. For example, I have seen a case of thyrotoxicosis with an initial basal metabolism of minus 8 which is "within normal limits," but that reading was raised above the patient's own "normal," which was in the region of minus 21 (1934).

It is wrong to say that a subject's *basal* metabolism can give "very different readings on two successive days." There must be something very far wrong with the technique employed if such results are obtained. Facilities rather than finance are of course very necessary pre-requisites for obtaining accurate results, and obviously these vary from clinic to clinic. At the Middlesex Hospital I have found no such difficulty in a study of over 2,000 normal healthy subjects, and in examining over 6,000 cases of thyrotoxicosis referred to the Courtauld Institute of Biochemistry, the Middlesex Hospital, from that hospital and from other similar institutions.

Next let us study the action of iodine on the basal metabolism in thyrotoxicosis. To begin with, it must be appreciated that iodine has no effect whatsoever on the *basal* metabolism

of normal healthy people. But iodine has a specific action in lowering the basal metabolism in a case of active thyrotoxicosis—very rarely it may cause the basal rate to rise. Not only pure iodine itself but all its soluble compounds have a similar action if the dose exceeds 6 mg. of iodine daily, or the equivalent of approximately 1 min. (0.06 ml.) of Lugol's solution. If, therefore, the thyrotoxicosis is active, iodine will certainly alter significantly the basal rate. In the case I reported with an initial reading of minus 8, iodine reduced the basal rate to the region of minus 21. Even if the thyrotoxicosis is minimal iodine will produce such an effect. While not making any comments on alterations in the *general* metabolism in thyrotoxicosis (there is, however, an ample literature on impairment of calcium, carbohydrate, creatine, and iodine) it can be stated that the basal metabolism is certainly affected and is significantly altered. I had the privilege on many occasions of discussing the metabolic aspects of thyrotoxicosis with my good friend the late Mr. Cecil Joll. He, keen critic as he was, on no occasion referred to the measurement of the basal metabolism as a "poor test." On the contrary, he expressed in a letter quite the opposite view (1934).

The use of thiouracil in lowering the basal metabolism as a *diagnostic* test in doubtful cases of thyrotoxicosis is of course of doubtful value. Thiouracil will cause a normal basal metabolism to fall even to a myxoedematous level, acting as it does in inhibiting the formation of thyroxine at the site of its synthesis, the thyroid gland. Iodine on the other hand is the only drug that has a specific action first in affecting the raised basal rate in thyrotoxicosis, secondly in having no effect on a normal basal rate.

In summary, it may be said that measurement of the basal metabolism requires care, careful technique, the employment of controls, alcohol-checked apparatuses, patience, and an awareness that its determination presents many pitfalls to the unskilled operator. My visit to America has impressed me, among many other things, with the care and accuracy with which this determination is carried out and also with reports made on the results obtained.—I am, etc.,

London, W.1. J. DOUGLAS ROBERTSON.

REFERENCES

Du Bois, E. F. (1936). *Basal Metabolism in Health and Disease*, 3rd ed., Baillière, Tindall and Cox, London.
Joll, C. A. (1934). *Lancet*, **2**, 1193.
Linnell, J. W., Keynes, G., and Piercy, J. E. (1946). *British Medical Journal*, **2**, 449.
Robertson, J. D. (1934). *Lancet*, **2**, 1076.
—— (1944). *British Medical Journal*, **1**, 617.

SIR,—I feel that in their article Dr. J. W. Linnell, Mr. Geoffrey Keynes, and Mr. J. E. Piercy (Sept. 28, p. 449) have grossly overestimated the frequency of thyrotoxicosis as a cause of auricular fibrillation when they state that "it is not yet generally appreciated that next to acute rheumatism toxic goitre is the most fruitful cause of auricular fibrillation."

In an analysis of 575 cases of auricular fibrillation published in 1932 by McEachern and Baker (*American Journal of Medical Science*) thyrotoxicosis accounted for 7.5% of cases, rheumatic heart disease for 34.4%, coronary artery disease for 31.1%, and hypertension for 16.9%; emphysema, syphilis, and miscellaneous conditions accounted for the rest. Four years earlier a series of 376 cases of auricular fibrillation was published by White and Jones, and thyrotoxicosis, as the aetiological agent, was found in 4.0% of cases, ranking fourth on the list. One has only to recollect the frequency in which one sees auricular fibrillation in obese and stolid individuals over the age of fifty to be sceptical of the importance of toxic goitre as the cause in the large majority.

Could it be that the now fashionable disregard for the B.M.R. has made a diagnosis of "early thyrotoxicosis" so frequent and often, in my opinion, so unjustifiable?—I am, etc.,

Liverpool. C. M. MILLER.

SIR,—The article on "Some Vulgar Errors in Regard to Goitre" (Sept. 28, p. 449) is deeply interesting and worthy of very close study; and the part dealing with thyrotoxicosis suggests questions to which it would be helpful to have answers. One sentence caused me some apprehension: "We, for our part, believe with Hertzler and many other workers in different parts of the world, that by the time early middle life is reached goitres without some evidence of associated toxicity are rare." Such goitres are in my experience much more common in women, and the signs and symptoms of mild toxicity are exactly those that may be present in women of that age who have no goitre.

Then again the less gross and less easily discernible signs and symptoms of thyrotoxicosis at any age are those which different clinical conditions may show, and in some of these the resting and, I believe, even the sleeping pulse rate may be raised. Given these signs and symptoms, should one recommend a subtotal thyroidectomy to preclude the possible onset of an auricular fibrillation?—and these are signs and symptoms the interpretation of which must be a matter of personal opinion. That auricular fibrillation may be the result of, or associated with, thyrotoxicosis is undoubted, but in my experience, which may differ from that of others, the fibrillation occurring in a case of mitral stenosis or acute rheumatism is already established, at least at the time one sees the case; and if that statement be accurate, then the position of paroxysmal auricular fibrillation in regard to thyrotoxicosis becomes interesting indeed. Again, "the fact that there may be phases of exacerbation and intermission of the symptoms does not make their discovery easier." It certainly does not, and this statement also applies to the other conditions which give precisely similar symptoms. Moreover, it has occurred that a goitre has appeared accompanied by the milder symptoms of toxicity as a result of emotional stress, and symptoms and goitre disappear, to reappear a few years later on the occasion of another emotional strain.

All these considerations increase the burden of responsibility on the doctor who has to decide what treatment is advisable in a case where the exact diagnosis must be a matter of conjecture; and the mortality even in the hands of expert surgeons is still 1%. I agree that the above types of cases provide the least operative risk; and although the operation by experienced surgeons in undoubted cases of thyrotoxicosis gives extremely satisfactory, even superlatively good, results, there are cases, also equally expertly operated on, where the immediate or final results are not so comforting to the patients or their doctor.—I am, etc.,

London, E.2. L. J. MOIR.

Catheter and Prostate

SIR,—Mr. C. J. A. Woodside asks (Aug. 31, p. 309) what should be done for the patient suffering from acute upon chronic retention from prostatic obstruction. The answer is that morphine and the suprapubic insertion of an aseptic lumbar puncture needle attached by a sterile rubber tube led into a sterile bottle will permit comfortable and safe transport for 100 or 200 miles. This is less painful than catheterization and does no damage to the delicate urethra (June 29, p. 997). Such a needle has been left in the bladder for three days, but in the presence of pyuria this would be a dangerous procedure. If a catheter has "perforce" been passed, then an immediate prostatectomy with closure of the bladder with unusually intensive chemotherapy and asepsis should be carried out forthwith.

Mr. Morton Whitby failed in his attempt to close the bladder (*Lancet*, 1934, **1**, 81) because of his want of asepsis and omission of trigonectomy, which is an essential part of my operation. Perhaps my introduction of sodium citrate would have made his operation possible. In my last 700 cases there has been one postoperative clot retention necessitating opening of the bladder. The clot was removed but no bleeding point found, and the bladder was then resutured. When I meet my next clot retention, having stopped the bleeding I shall again close the bladder in order to avoid sepsis. For six years I have not done a suprapubic drainage and never expect to do another.—I am, etc.,

Manchester. WILSON H. HEY.

Amniotic Membrane for Corneal Grafting

SIR,—Blindness from trachoma in China is a very prevalent condition, and in my role of surgeon to seven Honanese hospitals I have seen a distressing number of these cases. Corneal grafting by the accepted method is out of the question in China for various reasons related to the veneration people have for deceased relatives.

Although I had no special knowledge of ophthalmology, this problem had obtruded itself so strongly that I was impelled to try the grafting of amniotic membrane. Amniotic membrane, after treatment, is fairly transparent and when laid on the cocainized eye it was found that the individual bricks could be counted on a wall at a distance of thirty feet. It was felt too that if the grafting should succeed tissue metaplasia might reasonably be expected to take place.

A totally blind beggar volunteered for the experiment. He had a chronic infection of the eyelids from trachoma, which had caused his blindness. After three days a graft of his left eye had taken soundly and his anterior chamber was filling out. He could distinguish light. Shortly afterwards he could see objects, and on the seventh day he could count fingers at two feet; on the ninth day he could eat his meals with chopsticks; on the tenth day he had two small ulcer-like areas below the pupil and could not see so well. Instillation of penicillin was tried and two days later (almost at the time of writing) he had an improvement of vision. A good result from this case can hardly be hoped for as the patient's eyelids were already grossly infected.

At the same time two further grafts were done on two people with no infection and unilateral blindness. The result of these cases is now awaited and will be reported on later. In the meantime it is evident that amniotic membrane is a suitable tissue for use in corneal grafting.—I am, etc.,

WILLIAM J. C. WELLS.
Consultant Surgeon, U.N.R.R.A.
Shanghai.

Abacterial Pyuria Presenting as Urethritis

SIR,—I read Capt. A. B. Fieldsend's interesting article on the above subject (Oct. 5, p. 493) and should like to make a few suggestions:

(1) Three cases of abacterial pyuria are described without any reference to the condition of the kidneys. Surely, to most urologists, sterile urine containing pus cells is so strongly suggestive of an acid-fast infection that they will not accept any other diagnosis until this has been excluded? A tuberculous urethritis is admittedly rare, but it is described by Continental urologists as being a not infrequent accompaniment of a tuberculous infection of prostate or vesicles. (2) Inability to find the gonococcus and a negative complement-fixation test lead your correspondent to discard a diagnosis of gonorrhoea. Is this justified? My experience of gonorrhoea in this country is small, but when serving in West Africa one had to deal with gonorrhoea in numbers quite unparalleled at home. The two most striking features out there were the extreme difficulty in curing Europeans infected by African women and the difficulty in those cases of demonstrating the gonococcus unless the cases were seen right at the start, and before any treatment had been given. That they all were gonococcal and not "non-specific" was shown by the fact that smears were always taken daily, and every now and then a few gonococci would make their appearance—seldom intracellular even then. I so vividly remember an unfortunate young medical officer who came to me from upcountry in despair at having failed to cure himself. I turned on all my guns, including all the usual methods except penicillin, which was not available, but had to confess defeat and passed him further "down the line." They were no more successful, and at the end of six months the poor chap was boarded home in the hopes, I suppose, that a change in climate might have some effect. (3) Finally, with regard to the third case, surely a gonococcal cystitis is not very uncommon? Certainly, where the West African is concerned, a simple urethral discharge is regarded with such little concern that it is often only a severe cystitis which drives him to seek medical attention. As he has probably already taken some black market sulphonamide tablets (sold in the market at 5s. each) the elusive gonococcus may never be captured.—I am, etc.,

R. T. BURKITT.
Ashford, Mddx.

Benign Tertian Malaria in England

SIR,—The following two cases of benign tertian malaria are considered of interest as both occurred in subjects who have never been abroad. In both cases it is believed that infection occurred in Oxford.

The first, a girl of seventeen, suffered from intermittent daily pyrexia from Aug. 26 until antimalarial treatment was started on Sept. 26, after a blood film had shown B.T. trophozoites. After an indefinite onset with general malaise, lassitude, and headache, she complained each afternoon of chills and shivering followed by heat and sweating, the whole cycle lasting several hours. Headaches were her main complaint. The highest recorded temperature was 105° F. (40.6° C.). There was a partial remission of symptoms for several days in mid-September. Agglutination tests were negative for typhoid, paratyphoid, and undulant fever, and a chest skiagram showed no abnormalities. On Sept. 3 her spleen was just palpable. Her symptoms were promptly and completely relieved by quinine. Her brother had a relapse of B.T. malaria, confirmed by positive blood films, while on leave from Burma in April last. He was treated at home for a week before being sent back to his unit. Following demobilization he has lived at home since June 3, but has had no further symptoms. The second case was a railway worker aged 47 who has left Oxford only once in the past nine years. His symptoms of fever occurred each night from about Sept. 15 until antimalarial treatment was begun on Oct. 1, following a positive blood film. At the time of onset he was convalescent from an attack of pneumonia which began on Aug. 28. In this case headaches were absent.

These two patients live within sixty yards of each other and close to a slow-flowing branch of the Thames.—We are, etc.,

A. L. B. STEVENS.
G. G. B. BLACKMAN.
Oxford.

Delete "Curarine"

SIR,—One must regret that both Drs. T. Cecil Gray and John Halton in their interesting description of their method of using *d*-tubocurarine chloride "as an integral part of anaesthetic procedure" (Aug. 31, p. 293), and Dr. C. Langton Hewer in a more recent reference (Oct. 12, p. 531), so quickly relapse into the misnomer "curarine" for the curare preparation which they used. The confusion which has arisen because "curarine" once meant one thing and is now in danger of meaning a number of other things, and the desirability that the term, used without prefix, should therefore be dropped, has already been the subject of a letter from Dr. Trevan of the Wellcome Research Institute (*Lancet*, Sept. 7, p. 361). The makers of the preparation which Drs. Gray and Halton were using, and whose former nomenclature they followed, have now rechristened their preparation "tubarine" in order to meet the needs of doctors who feel "*d*-tubocurarine chloride" to be too long a name for repeated use. We must expect other preparations of curares and drugs with curariform actions to appear on the market. They also will probably carry long names for accuracy and short names for convenience. They will not all have the same total pharmacological action, however, nor will they be of the same strengths. And, unless we are going both to continue confusion and make nonsense of much of the work which was done on these alkaloids in earlier days, we must avoid reducing any of these titles to plain "curarine."

For years the term "curarine" was applied to an *impure* alkaloid variously obtained from calabash curare and *Strychnos toxifera*. It had better now be regarded as a term of historical interest only.—I am, etc.,

RANYARD WEST.
Edinburgh.

The Referendum

SIR,—The B.M.A., it is understood, will take a referendum, as soon as the National Health Service Bill passes through the House of Lords, asking its members whether they wish negotiations opened with the Minister of Health on the terms of service in the new scheme. As we have no reason to believe that "negotiations" will achieve anything unless there is a definite threat to this Bill's very existence, it would seem obvious that there is only one course of action open to us when we make our answer. Given a Minister who shows more respect for age-old traditions of service and a more compromising attitude one would feel very differently about opposing outright a Bill which has cost so much in time and human endeavour.

If we as a profession genuinely believe that this Bill will bring about the enslavement of both the individual doctor and his patient, to the detriment of both, and that drastic changes in certain vital respects are necessary to remedy these defects, we should answer NO with all the strength and faith that is within us. Genuine negotiations can then follow, and not till then, and the results will be fruitful. Let us realize that the Minister is a man experienced in the methods of industrial

dispute, where both sides come to the conference table possessed of considerable bargaining power. Surely it is the Minister's belief or hope that the doctors are so divided that has led him to override all opposition in a way which suggests his contempt for the medical profession as a force to be contended with.

Those of us who feel that their future might be jeopardized by opposing this Bill by means of the referendum can reflect that they are merely expressing an honest opinion. In the event of a 90% vote against the Bill they will place in the hands of our leaders a weapon which will enable them to fight this battle to a satisfactory conclusion.—We are, etc.,

J. K. Bostock. W. R. Main.
Buckingham. H. G. Cereseto. E. S. Pope.

The Milk Ration

Sir,—I am sure many practitioners will be grateful to Mr. A. Staveley Gough for his letter (Oct. 12, p. 551) on the milk ration. A vicious circle is now well established. As the milk ration sinks the pressure on the doctor to place ailing patients in one or another favoured category rises; none of those entitled goes a single day without his or her full extra allowance; the priority pool swells, the non-priority puddle dwindles; the decent, honest, healthy citizen feels—and is—ill-used, the doctor is riled. Surely it is time to break this circle somewhere.

I suggest that for many of the categories the allowance might be halved without undue hardship. One pint a day for ulcer patients not in bed, for post-operative conditions, and perhaps for tuberculosis, and half a pint for temporary illness, the sick child at home, "dyspepsia"—blessed word—and perhaps colitis ought to be enough. Probably not even the Minister knows precisely how the nation's milk is distributed between the different categories, but it seems a fair guess that such a halving would permit the ordinary ration to be appreciably raised and reduce a little the unceasing demand for priorities.

At the same time the Minister might declare a countervailing bounty for persons over 75 and revise that ominous category I (g) which forbids any medical man under the rank of tuberculosis officer to provide any extra milk at all for a patient with a pleural effusion.—I am, etc.,

London, N.W.3. Lindsey W. Batten.

Selection of Medical Students

Sir,—The correspondence in the *Journal* of Oct. 5 suggests that the problem of selection of medical students may call for a knowledge of techniques not possessed by the amateur selector. Although I had already realized this it none the less seemed to me important to make a detailed presentation of the case from the amateur point of view, since in fact selection of medical students in this country is carried out mostly by amateurs, and professional selectors rarely have an opportunity of using their skill in choosing medical students. This is not intended as an apology for the amateur nor a slight for the professional, but merely a statement of the present position. (I use the words amateur and professional in their relation to technique of selection.) Having put forward the amateur's point of view I very much welcome the criticisms of the professional, but I should like to make some comments on these.

Dr. D. R. MacCalman (p. 511) informs me that the Army psychologists in 1941 took up the problem where I left off. I actually knew that the technique of selection had been highly developed in the Services and stated so in my article, but I also stated that until the information obtained was made available the knowledge of its existence was of little immediate help. I am grateful for the hints which Dr. MacCalman gives about the general nature of the work in the Services, but I should welcome still more details of the methods used, and the suggestion made by Mr. Slater that the War Office might be invited to publish this information is an excellent one. Dr. MacCalman suggests that testing for a general capacity of "officer effectiveness" is much better than looking for individual qualities. Perhaps he could suggest how this can be applied to selection of medical students. Is there a quality of "doctor effectiveness" which can be assessed, and if so, how can this be done? I am very interested to learn of the research which is being carried out at Aberdeen, and I hope the results will be made available as soon as possible. I am afraid I did not make quite clear my attitude towards participation of psychologists in selection of medical students. After pointing out that there was sometimes a feeling of alarm at the idea of psychologists selecting medical students I went on to give reasons why this fear was probably groundless, though I am sure it is true to say that the feeling exists. I can certainly assure Dr. MacCalman that I personally feel no alarm about this matter, as I am sure that the way to success must lie in full co-operation between the well-meaning amateur who at present has the executive responsibility for recruitment to the medical profession and the well-trained professional who has the necessary techniques.

Mr. Patrick Slater (p. 512) has questioned my conclusions about the negative value of interest in selection. I stated that an *interest in medicine* expressed by an applicant has little selection value, and I still hold to this opinion. The candidate's general interests are, of course, something quite different and, as Mr. Slater points out, one of the means of judging character. I cannot agree with his contention that the most economical method of selection is to choose at each stage those who have the highest probability of succeeding at the next. It implies that the basis of selection should be ability to pass the examinations of the medical curriculum, or, to push the argument further, to pass the first M.B. examination. I should very much like to know from Mr. Slater what criteria have been used at the National Institute of Industrial Psychology in giving prospective medical students advice about their suitability for a medical career. If reliable methods have been worked out they should certainly be made available. Finally I agree very fully with the view expressed in your leading article, that selection of the applicants is only the beginning of the problem and should logically be followed by guidance during the period of training, so that the talents of the individual might later be used to the fullest advantage in one of the many fields of work offered by modern medicine.—I am, etc.,

University College, London. D. H. Smyth.

Sir,—Mr. J. S. Wilkie, in his article on the Selection of Women Medical Students (Sept. 14, p. 367), makes a great many statements—and an even greater number of implicit assumptions—which would appear unwarranted to psychologists used to applying the scientific method to problems of vocational selection. To deal with every controversial point in the article would take up too much of your space. May I concentrate, therefore, on the more surprising points?

(1) All Mr. Wilkie's elaborate statistical calculations are concerned with the relationship between individual questions, or groups of questions, and the total test score. Little of value can be deduced from these relations unless data are given on the validity of the test as a whole—i.e., on the relationship between total test score and students' proficiency (assessed independently of the test). Mr. Wilkie deduces, for instance, that the second part of his test (sub-questions to which the answer can be given in one word) is as reliable as the first (questions to be answered by continuous passages of prose), because the two parts correlate roughly to the same extent with question No. 10, or it may be because the average correlation of questions Nos. 6–10 with the total is significantly higher than the average correlation of questions Nos. 1–5 with the total. Mr. Wilkie's reasoning on this point is not clear to the writer, but it is evident that no data are given which throw any light on the relative validity of the two parts of the test. (2) The finding of the higher correlation with the total of questions Nos. 6–10 may well be an artefact of the scoring systems. If, in general, questions Nos. 1–5 show less range of scores than questions Nos. 6–10 (Nos. 1–5 having smaller variance), then the difference between the correlations which were obtained is to be expected on purely arithmetical grounds. The data for this explanation are not given, but in view of Mr. Wilkie's description of the marking of the two sets of questions it would appear highly probable that this is in fact the case. (3) Mr. Wilkie infers that question No. 10 is a "test of intelligence" from the fact that the 118 first-year candidates do not score significantly less than the 258 second-year candidates. Apart from the fact that he adduces no evidence to prove that these two groups are

comparable (he even mentions that "it is not difficult to think of circumstances which might have had a prejudicial effect on some of the studies of the older group"), the following objections present themselves: (*a*) No one question can constitute "a test of intelligence." A number of questions embodying a variety of logical principles is essential. (*b*) The assumption that any question in which the first-year candidates do at least as well as the second-year ones is *for that reason* a measure of intelligence leads to the most absurd conclusions. On this criterion, a question as to the relative merits of two film stars or the best method of baking bread would almost certainly turn out to be a test of intelligence. (*c*) Mr. Wilkie tacitly admits the improbability of question No. 10 being a test of intelligence when he says that "it might also be a test of self-confidence." The same question cannot assess both intelligence and self-confidence (or any other temperament trait) unless they are identical or are always found together. Neither doctors nor psychologists would assert that the most self-confident people are in fact the most intelligent. That the former trait is "not an undesirable quality in a medical student" is irrelevant here. All that can legitimately be said on the question of the relative proficiency of first- and second-year candidates is that if the second-year do significantly *better* on some test, *and other things are equal*, then the test is probably *not* assessing intelligence. (4) Mr. Wilkie evidently believes that armchair inspection of any test question is sufficient to determine whether "whatever it tests is an ability or a group of abilities which would be desirable in a student of medicine." Apart from the fact that little agreement has been reached by the medical profession as to the qualities necessary and sufficient for medical competence (see Dr. Smyth's comprehensive inventory of human virtues, Sept. 14, p. 360), there is no short-cut method of determining what it is that a psychological test assesses, let alone what one particular question assesses. This can be done only by testing large numbers of people, following them up (whatever their test performance) and comparing their success or failure in their career with their original test scores. (5) Apart from criticism of the test questions, the system of marking was such as to render inter-question correlations meaningless. Some of the questions, such as No. 2 ("concerning methods of teaching two school subjects") were necessarily highly subjective in their marking.

The second part of the test is described as capable of being "marked with much greater ease and reliability than the first part." The first five questions have been arbitrarily "translated into numerical form" and these marks have been compared with the marks allotted on the remaining questions. This is not statistically permissible.

The writer has no quarrel with Mr. Wilkie's final conclusion—that a test designed to be objectively marked is as reliable for selection purposes as a test with the same function whose marking is subjective. She would claim, however, that it is possible to reach that conclusion only by means of tests whose consistency and validity have already been established. Finally, she would suggest that vocational selection might be treated with the respect accorded to other technical problems—i.e., long-term experiments should be planned, reliable criteria should be provided for purposes of comparison, and the co-operation of the relevant experts should be enlisted.—I am, etc.,

Psychological Laboratory, Cambridge. A. W. HEIM, M.A., Ph.D.

Legal and Medical "Insanity"

SIR,—Admitted imperfections in the McNaghten Rules are unlikely to be corrected by the type of pseudo-scientific casuistry displayed by Dr. J. A. McCluskie (Oct. 12, p. 555) when he questions the meaning of the words *right* and *wrong*. Nor is it possible to extract from his letter one single constructive proposal for the improvement of judicial procedure in the type of case under discussion. In fact, such procedure would inevitably be even more unsatisfactory than it is at present were his assumption as to the purposelessness of these fundamental terms valid. Where there is no conception of absolute values there can be no justice. The essence of the present legal view is surely that a man is either responsible or certifiable: to the lay mind this has the merits of logic, justice, and simplicity. If it is right, the first task of the psychiatrist in helping to improve upon the existing rules will be to define the place of the psychopath in this proposition. If it is wrong, he must be prepared to suggest a better alternative. But if such distinctions have little or no meaning for him, it is hard to see how he in his turn can accept this responsibility.—I am, etc.,

London, S.E.5. D. STAFFORD-CLARK.

Perforation of the Ileum in Enteric Fever

SIR,—Dr. G. E. Dunkerley in his article "Perforation of the Ileum in Enteric Fever" (Sept. 28, p. 454) has made an important contribution to this interesting subject, of which on two occasions during the last two years I have had experience.

Perforation in my first patient occurred on the twelfth day, without previous diarrhoea or distension, and was not diagnosed as such until eleven hours after the event, when peritonitis was established. The single perforation 1 ft. (30 cm.) from the ileo-caecal valve was closed and the pelvis drained. The post-operative course was punctuated by bloodstained pleural effusion, pelvic abscess, obstruction by bands, myocarditis, a mild heat stroke, and a ventral hernia; but the patient recovered.

The second patient suffered from severe diarrhoea and distension but had been on succinyl sulphathiazole therapy for 24 hours before perforation occurred on the thirteenth day. I saw him within a quarter of an hour of a sudden attack of right-sided abdominal pain, but perforation did not seem to be a certainty. He was lying quietly in bed; the temperature was 101° F. (38.3° C.) and pulse rate 110. The abdomen was not rigid, but there was tenderness in the right iliac fossa. Gut sounds were audible with a stethoscope. Two hours later the pulse rate had risen to 120 and the temperature to 105° F. (40.6° C.), and a rigor occurred. The abdomen was now rigid and tender all over, and gut sounds and liver dullness were absent. At operation (2½ hours after the attack of severe pain), a single perforation 1½ ft. (45 cm.) from the ileo-caecal valve was found and was sutured. Convalescence was even more stormy than in the first case. Gastric suction and continuous intravenous infusion were given almost continuously for 40 days. Complications in this case were: secondary haemorrhage from the right deep epigastric artery (which required ligaturing), obstruction of the small intestine by bands followed by herniation of a loop of jejunum through the wound (treated by resuture of the main wound and enterostomy through a separate stab incision), and later there followed symptoms of tetany, myocarditis, and finally a left-sided empyema (drained surgically by Major I. P. James); but again the patient recovered.

These two case histories support Dr. Dunkerley's thesis that perforation usually occurs earlier than in the third week and the classical signs of perforation may be absent in the early stages. The prognosis is also better than is generally supposed, because nowadays we are able to treat the associated serious derangements of the blood chemistry. The typhoid patient requires plenty of fluid and a high protein diet administered by three-hourly feeds, and often, when the action of the damaged bowel flags, timely parenteral substitution is necessary to keep the patient alive.—I am, etc.,

Leeds. MICHAEL C. OLDFIELD.

Postgraduate Education

SIR,—I feel compelled to express my approval of every detail of Mr. John Stallworthy's well-reasoned letter (Oct. 5, p. 510). It is high time that practical clinical medicine and surgery should be granted the importance overdue to them. It is the practising physician or surgeon who applies the good results of research undertaken by his more academically minded colleagues—the professor and the research worker. In the past, however, clinical workers themselves have made most important contributions to clinical research. This is often forgotten. The Postgraduate Federation outlined by Sir Francis Fraser must of necessity foster the academic aspect to the detriment of the practical and clinical. It appears to me that a unique opportunity presents itself in London to place medical teaching on a sound basis. It has been suggested that all undergraduate teaching should be based on the University and that the three Royal Colleges should organize postgraduate education. These latter already have experience of this and I feel that by co-operation with approved hospitals they could create and organize a postgraduate teaching service second to none in the world. Teaching, both clinical and academic, would be fostered, and research encouraged—all in their rightful proportions.—I am, etc.,

London, W.1. CHARLES D. READ.

Disseminated Sclerosis: Corrections

SIR,—I would be glad if you would correct the following errors in your report of my Presidential Address (Oct. 19, p. 587) on "The Problem of Disseminated Sclerosis," which are somewhat misleading.

(1) "Some recent work in Moscow" is contained in a paper by M. S. Margulis, V. D. Soloviev, and A. K. Shubladze, which is published in the current number of the *Journal of Neurology, Neurosurgery, and Psychiatry*. They claim isolation of a virus from two cases of acute disseminated encephalomyelitis, but no similar claim is made for disseminated sclerosis as implied in your report.

(2) In discussing the known pathways of infection in toxi-infective diseases of the nervous system, reference was made to the attention given, in the early part of this century, to the peripheral nervous system as the route of infection by the sequence of events in rabies, tetanus, and diphtheria, and not in disseminated sclerosis as suggested by your report.

(3) Reference was made to a survey of 142 cases of disseminated sclerosis; these cases were collected over a period of four years and not one year as stated.—I am, etc.,

Middlesex Hospital, W.1. DOUGLAS MCALPINE.

BRITISH ORTHOPAEDIC ASSOCIATION

Orthopaedists assembled in London for a very full annual meeting on Oct. 18 and 19. Discussion, presidential address, papers, and films occupied the first day at the Royal Society of Medicine, dinner was at Grosvenor House, and business meeting and clinical demonstrations followed next morning at St. Thomas's Hospital.

Annual Dinner

The British Orthopaedic Association is a well-established authoritative body, and certainly added to its stature by the brilliance of its annual dinner of twenty-one tables, at which austerity fare, uniform, and lounge suits were all giving way to roast duckling and boiled shirts. The President, Mr. George Perkins, welcomed the return of the members' ladies, and toasted as official guests the Prime Minister, the Ministers of Health and of National Insurance, and a number of foreign orthopaedists. Sir Heneage Ogilvie (Vice-President, Royal College of Surgeons) proposed the health of the Association with wit and wisdom. Sir Reginald Watson-Jones (Orthopaedic Surgeon to the King) deplored the lack of spontaneous song and smiles in England to-day and laid some responsibility upon those who sought to regiment the flowers rather than place reliance upon "the unofficial English Rose." He said he did not want to be a Civil Servant and would not be a Civil Servant. Mr. Attlee pleaded for happiness derived from "freedom on an ordered plan of co-operation" and instanced the example of the equalitarian countries. Mr. Bevan, reminding his audience, with apt orthopaedic metaphor, of the many twisted stems in "the unofficial English Rose," explained that he sought "to put the best kind of medical apparatus in the hands of the profession for them to use it freely and independently for the maximum benefit of the patients," and added: "My relations with the British Medical Association are growing more friendly week by week." (He had that day made an announcement about discussions on the capitation fee for insurance practitioners, which will be found in the *Supplement*.) The Minister of National Insurance spoke of his own debt to orthopaedists after a mining accident and declared that the best planned orthopaedic service was desirable to combat the high incidence of accidents in this vital industry.

The meeting showed that orthopaedists will carry to the post-war world a rationalized amplified service gained from their interchange of abundant wartime experiences.

The Central Council for Health Education has revised its committee structure, resulting in the constitution of two major committees dealing respectively with field work and with materials in Health Education. At the first meetings of these new committees Dr. A. B. Williamson, M.O.H. for Portsmouth, was appointed chairman of the field work committee, and Dr. H. Maurice Williams, M.O.H. for Southampton, was appointed chairman of the materials committee.

Obituary

C. S. MYERS, C.B.E., M.D., F.R.S.

We regret to announce that Dr. Charles S. Myers, the eminent psychologist and a pioneer in industrial psychology, died suddenly at his home, Winsford, near Minehead, Somerset, on Oct. 12. His life work has had a profound influence on the selection of personnel for industry and for military service. He taught the significance of the human factor, trained a band of enthusiastic disciples in the techniques of investigation, and persuaded many large industrial firms to employ a psychological consultant.

Charles Samuel Myers was born in London on March 13, 1873, and from the City of London School entered Caius College, Cambridge, where he won first-class honours in Parts 1 and 2 of the Natural Sciences Tripos and was appointed Arnold Gerstenberg student by the University. He went on to St. Bartholomew's Hospital for his clinical course and graduated M.B., B.Ch. in 1898, in which year he travelled with the Cambridge Anthropological Expedition to Torres Straits and Sarawak. On his return he became house-physician at Bart's and proceeded M.D. in 1901 and was elected a Fellow of his College. While living at Cambridge he became Reader in Experimental Psychology and Director of the Psychological Laboratory; he also held for three years the chair of psychology at King's College, London. Myers was the first president of the British Psychological Society and edited the *British Journal of Psychology* from 1911 to 1924. Meanwhile he had taken the Cambridge degree of Sc.D. and was elected F.R.S. in 1915. He did outstanding work for a long time as Principal of the National Institute of Industrial Psychology and later became its honorary scientific adviser. He presided over the International Congress of Psychology in 1923, gave the Herbert Spencer Lecture at Oxford in 1929, the Hobhouse Memorial Lecture in London in 1932, the Joule Memorial Lecture at Manchester in 1933, and in the same year the Bradshaw Lecture before the Royal College of Physicians of London on "A Psychological Regard for Medical Education."

Myers did valuable work as consulting psychologist to the British Armies in France in the war of 1914–18 with the rank of lieut.-col., R.A.M.C., making a particular study of what was then termed "shell shock," and he was one of the first to join the Advisory Committee on Personnel Selection set up later by the War Office. He had also been a member of the Home Office Factory Lighting Committee and of the Industrial Health Research Board. The University of Manchester conferred on him the honorary degree of D.Sc., and the University of Calcutta its honorary LL.D. He wrote on the theoretical as well as the practical sides of his subject. Besides contributions to journals devoted to psychology, anthropology, medicine, and physiology, he published *Mind and Work* in 1920, *A Textbook of Experimental Psychology* (third edition, 1925), *Industrial Psychology in Great Britain* (second edition, 1933), and other books entitled *Business Rationalization* (1932), *A Psychologist's Point of View* (1933), *In the Realm of Mind* (1937), and with Henry J. Welch *Ten Years of Industrial Psychology*. A gifted scientist, he had remarkable prevision of the service that his branch of science could give in choosing people for the right job. The following reference to Myers's pioneer work as director of the National Institute for Industrial Psychology is quoted from a tribute in the *Manchester Guardian*: The institute grew, in fact, from his statement, while lecturing in 1919, that his Army experience had convinced him that psychology must be taken out of the laboratory and applied to the practical problems of life and work. One of his hearers, Mr. Henry Welch, a tea and rubber merchant, had himself thought of applying psychological methods to business appointments. They joined hands and started the institute.

HENRY HANNA, M.B., B.Sc.

Mr. Henry Hanna died suddenly at his residence in University Square, Belfast, on Sept. 28. A well-known figure to successive generations of medical students, he had many friends and

enjoyed a high reputation in the practice of otorhinolaryngology and ophthalmology.

Born in 1874 he was educated at the Belfast Royal Academy, Queen's College, Belfast, and St. John's College, Cambridge. The old Royal University of Ireland conferred on him the degree of B.A. in 1894 and the M.A. and B.Sc. in 1896. Later, he took up the study of medicine and graduated M.B. in 1903. Then followed a time as resident medical officer at the Royal Victoria Hospital, Belfast, a period as demonstrator of anatomy in the University, and finally a course of post-graduate study in his chosen subjects at Vienna. After this he set up in specialist practice in Belfast and was appointed to the visiting staffs of the Royal Victoria Hospital and of the Belfast Infirmary, now the City Hospital. He retired from the "Royal" in 1939, in his last year holding office as chairman of staff, but throughout the war, like other consultant members of the staff, he came to the aid of the hospital to make up for loss of the services of those who had joined the Armed Forces. Some measure of his vitality and continued interest in his work is shown by the fact that he retained his active position on the staff of the City Hospital (a connexion going back for well over 35 years) until the time of his death.

In his early days he was trained as a biologist and for a time he taught botany and geology at the Royal College of Science in Dublin. These experiences, his friends recognized, did much to influence his life and to determine the nature of his subsequent interests and pursuits. He was an enthusiastic collector and in his house had many valuable pictures, pieces of porcelain, and exquisite examples of old Irish glass. Outdoors, his hobbies took him in a variety of directions, but he was perhaps most happy with the rod, and each year he spent many evenings, regularly during the summer months, by the water fishing.

Mr. Hanna took his part in public life, being a past president of the Ulster Medical Society, the Irish Ophthalmological Society, and of his own special section at the British Medical Association's meeting in Belfast in 1937. But he was reserved as a rule in large gatherings unless some matter urged on him the necessity for speaking (which he then did most effectively). Unquestionably he enjoyed more the happiness of his own fireside with his wife and children and their friends or the chance encounter with his colleagues, when they would be sure to glean some appreciation of his dry wit and shrewd ability to assess both situations and persons. At times irascible, he had a strong sense of justice, but his nature was warm at heart and deeply appreciative of the trials and sufferings of others.

News has been received from Auckland of the death on Oct. 3 after a long illness of Dr. Robert Haldane Makgill, C.B.E., who before his retirement in 1932 had been medical officer in the Government Health Department of New Zealand for 31 years. A native of Scotland, he was born in 1870, second son of Sir John Makgill, of Kemback, Fife, 10th baronet. He graduated M.B., C.M. at Edinburgh University in 1893, proceeded M.D. in 1899, and took the Cambridge D.P.H. in 1901 after service in the South African war as civil surgeon with the Natal Field Force. During the war of 1914–18 he held a commission in the R.A.M.C. and served at Alexandria with the Sanitary Branch of the Egyptian Expeditionary Force for a year, and then was appointed A.D.M.S. (San.) with the N.Z. Expeditionary Force. Dr. Makgill was created C.B.E. in 1919 for his work in the war, and had been honorary pathologist to the Auckland Hospital and M.O.H. for Auckland.

Dr. Norman F. Elliott Burrows, late Surg. Lieut.-Cmdr., R.N.V.R., sends the following tribute to Dr. T. Watts Eden: Although many of his contemporaries and colleagues will pay their tributes to Dr. Eden, may I, as representing a very much younger vintage, say how much I deplore his death, and what a loss the medical world has sustained by his passing. I first met him at the end of 1944 when I was stationed in Devon with the Marines. He paid a courtesy call to my sick bay, and having introduced himself as Dr. Eden, I immediately asked him if he was any relation to the Eden of Eden and Holland. I shall always remember the look of pardonable pride on his face as he replied simply, "I am Eden." He was one of the most gentlemanly, unselfish, and mentally alert people it has been my pleasure to meet, and in these days of hurry, lack of courtesy, and materialism it is refreshing to have met and enjoyed the company of a man of his calibre.

The Services

A PRESENTATION BY ARMY CONSULTANTS

On Oct. 14 at the Royal Society of Medicine the Army medical consultants, now demobilized, presented to the Director-General A.M.S., Lieut.-Gen. Sir Alexander Hood, for the headquarters mess of the R.A.M.C. at Millbank, an album containing the portraits and records of service of members of the medical and dental professions who served as consultants and advisers with the land forces of the British Empire at home and overseas during the second world war. A sum of money was also presented to the Royal Army Medical College for the endowment of a prize.

Sir Heneage Ogilvie, who made the presentations, said that he thought it could be claimed, without undue boasting, that the British soldier in the recent war had had better medical attention than any soldier of any army had ever received before in military history, and this was largely due to the happy association and loyal co-operation which prevailed during the momentous years of war between the regular officers of the Army Medical Service and those who, from all branches of medicine, were only too eager to join for the period of the war a service of such high traditions.

Sir Alexander Hood, in accepting the gifts on behalf of the Service, said that his first acquaintance with the consultants was in 1939 in France when a very happy band were gathered together in Dieppe, and used to come up to the fastness where he and his brother officers were lodged in Arras, bringing with them not only great stores of knowledge and wisdom, but also certain provender which was extremely acceptable. His next experience of them was when he came to the War Office and got into touch with a large number of most co-operative and busy people whose services the Army was very fortunate to command. He referred to some distinctive achievements, one of them the production of the *Army Medical Bulletin*, the first number of which was published early in 1941, and the last—the 51st—in June, 1945. The *Bulletin* was looked forward to by medical officers all over the world. Then there were the consultants' meetings, when sometimes as many as forty would sit round the table, the number including some from the American and Dominion Armies, and also French and Belgians and people from the E.M.S. and the Medical Research Council. Many consultants were fortunate enough to go far overseas. He thought there was not the slightest doubt that the standard of medicine and surgery in India, West Africa, and elsewhere owed a tremendous amount to the work of the consultants who were serving there with the Army. "You can look back on your achievements with great satisfaction. If sometimes the administrative machine seemed to you to suffer from considerable inertia, please remember that we did our best. We were a happy party, and it is by having happy people work with one that the best work is done. I look back on this association as covering some of my happiest days in the Army. I agree that the British soldier was better looked after in this war than any soldier has ever been, and that was due very largely to the consultants who served with us."

Fl.-Lieut. C. B. I. Willey, M.C., R.A.F.V.R., has been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services rendered during the period of operations against the Japanese in Malaya and the Netherlands East Indies terminating in March, 1942. He has also been mentioned in dispatches in recognition of gallant and distinguished services while a prisoner of war in Japanese hands.

Acting Squad.-Ldr. R. A. Cumming, R.A.F., has been appointed O.B.E. (Military Division) in recognition of gallant and distinguished services while a prisoner of war in Japanese hands. His name also appears in a list of people mentioned in dispatches in recognition of gallant and distinguished services in Malaya, Hong Kong, and the Netherlands East Indies during the operations against the Japanese terminating in March, 1942.

The Queen of the Netherlands has conferred the decoration of Knight Officer of the Order of Orange Nassau with Swords upon Major G. F. Bramley, and Major (Temp.) H. Kennedy, M.B.E., R.A.M.C., in recognition of distinguished services in the cause of the Allies.

The following decorations have been conferred by the President of the U.S.A. in recognition of distinguished services in the cause of the Allies. *Legion of Merit, Degree of Commander:* Brig. (Temp.) H. L. G. Hughes, C.B.E., D.S.O., M.C., R.A.M.C. *Legion of Merit, Degree of Officer:* Lieut.-Col. A. N. B. Odbert, O.B.E., R.A.M.C. *Legion of Merit, Degree of Legionnaire:* Col. T. Young, O.B.E., R.A.M.C. *Silver Star Medal:* Lieut. J. D. Devitt, R.A.M.C.

Bronze Star Medal: Brig. (Temp.) M. L. Formby, Capt. T. W. Renton, and Lieut. J. G. Searle, R.A.M.C. *Typhus Commission Medal:* Brigs. R. W. Galloway, C.B., C.B.E., D.S.O., and G. S. Parkinson, and Col. (acting) H. D. Chalke, O.B.E., R.A.M.C.

The decoration of Commander of the Order of the Crown has been conferred upon Maj.-Gen. E. Phillips, K.B.E., C.B., D.S.O., M.C., late R.A.M.C., by the Prince Regent of Belgium in recognition of distinguished services in the cause of the Allies.

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services while prisoners of war in Japanese hands:

O.B.E. (Military Division).—Wing Cmdr. C. W. Coffey, Acting Wing Cmdr. D. Magrath, R.A.F., and Acting Squad.-Ldr. J. A. MacCarthy, G.M., R.A.F.O.

M.B.E. (Military Division).—Fl.-Lieuts. F. A. Forbes, J. Lillie, F. W. Parke, F. R. Philps, W. N. Riley, and W. F. Tierney, R.A.F.V.R.

Mentioned in Dispatches.—Acting Squad.-Ldr. D. A. Duthie, R.A.F.O., Fl.-Lieuts. R. G. Blackledge (deceased), R. F. Braithwaite, M. H. Kinmonth, L. C. Liddell, and J. Simpson, R.A.F.V.R.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Burma:

Brig. (Temp.) J. P. MacNamara; Brigs. (Acting) R. R. Bomford, P. Wiles Cols. (Temp.) R. A. Anderson, O.B.E., J. D. Driberg, P. J. Stokes, T.D.; Cols (Acting) A. B. Dempsey, R. R. Leaning, O.B.E.; Lieut.-Cols. P. H. R. Anderson, A. J. Dalzell-Ward; Lieut.-Cols. (Temp.) G. T. Ashley, H. L. Ellis, G. J. Evans, P. P. Fox, W. R. N. Friel, W. G. Garrow, W. H. Graham, K. H. Harper, G. C. Hernan, M. S. Holman, C. H. Hoskyn, O.B.E., R. H. Isaac, K. Kumar, D. A., Lowe, G. G. Mer, O.B.E., R. S. Ogborn, R. A. Philp, R. K. Pilcher, M.C., J. R. Squire, H. Stevenson, J. C. Watts, M.C., A. L. Wilson; Lieut.-Cols (Acting) I. Calvert-Wilson, T. K. Howat, H. L. Wolfe; Majors (Temp.) A. M. Hutton, J. C. Coates, A. Colbert, J. O. Collin, H. W. F. Croft, J. P. Donnel, H. F. Ferguson, A. Gould, E. J. Harrison, R. G. Henderson, J. Hemphill, N. Leitch, P. F. MaGuire, A. L. R. Mayer, A. I. McCallum, J. A. McPherson, R. Murray, J. O'Hara, N. C. Porter, J. A. Ritchie, W. T. Walker, M.B.E., G. Wynne-Griffith; Majors (Acting) K. T. Grey, J. W. Miller, W. G. Mills; Capts. R. M. Allan, R. F. Antonio, G. D. G. Barnes, R. H. Bowie, E. G. Dryburgh, R. C. Evans, J. A. S. Forman, C. R. Forrest, P. Fuchs, J. C. Heskith, K. Heslop, L. P. Hodgson, N. B. Jones, S. H. Madden, W. D. Mail, P. L. Masters, S. J. T. Merryfield, C. E. S. Myers, M.B.E., B. A. Protheroe, I. Reubin, A. C. Ritchie, P. R. Robinson, K. R. Urquhart, J. A. K. Wallace, G. L. Whitmore; Capts. (Temp.) K. W. Andrews, J. W. Hitchens, F. H. Kelland, G. W. Park, D. H. Rea, A. Smith. R. B. C. Smith, M. W. Stock, W. T. Stone; Capts. (Acting) S. D. Cuthbertson, A. Harrop, A. T. Makin; Lieuts F. Birch, A. E. Davies, H. Harris, A. I. Hyman, D. I. Jones, J. W. Lewis, G. F. Strickett, R.A.M.C. Cols. (Temp.) F. R. Cawthorn, O.B.E., B. R. Tandon; Cols. (Acting) Avyaktanand, M.B.E., D. R. Cattanach, D. K. L. Lindsay, O.B.E.; Lieut.-Col. K. M. Unnikrishnan; Lieut.-Cols. (Temp.) G. V. Chaphekar, M.B.E., A. N. De Monte, M.B.E., M.C., G. T. M. Hayes, J. R. Kerr, D.S.O., W. N. Niblock, J. P. O'Riordan, G. A. Ransome, F. W. Snedden, G. B. R. Walkey, J. L. M. Whitbread; Lieut.-Cols. (Acting) B. Bhattachariya, W. F. J. M. Thom, V. R. Mirajkar; Majors (Temp.) A. H. Vatsyayan, C. R. K. Carroll, A. L. D'Cunha, C. A. Fegredo, F. M. F. Forrest, M. W. Grunstien, F. G. Millar, M. G. Hyder, A. C. Molden, N. U. Khan, P. Shankaran, S. K. Sen, D. S. B. Stephens, U. P. D. Gupta, E. Watson, J. G. Webb; Majors (Acting) G. S. Dhaliwal, K. L. Chitwal, J. J. D. Lobo, A. S. Reilly, J. H. York; Capts. A. K. Bose, B. S. Dhillon, B. N. Chatterjee, B. N. Bali, B. Bakhshi, C. M. Patnaik, C. K. Kurup, C. J. David, C. L. Bahl, V. N. Datar, G. W. D'Sena, D. H. Biswas, G. S. Godiwalla, M. R. Gopal Aratham, K. Govindarajulu, H. K. Ray, H. B. Parelwali, H. Reza, J. M. Bose, K. V. G. Kurup, M. Sinjh, M. Dutt, M. Raja, C. P. Nair, M.B.E., N. M. Maitra, N. Talukdar, N. S. Ahluwalia, C. M. Patnaik, J. M. Pinto, P. P. Ramadivi, R. N. Dutta, S. P. Ghose, S. Prasad, S. K. Mazumdar, S. Sinjh, R. M. S. Terry, T. Karunakaran; Capts. (Temp.) P. S. Bhat, B. R. Chaudhuri, D. B. Patnaik, C. R. Peck, P. Chandra, Rangaraj, N. N. Santhanam, Shrivastava, T. R. Sibramanian; Capt. (Acting) A. K. Mitra; Lieuts. I. A. Khan, J. N. Ghosh, S. J. Mascarenhas; Sub.-Majors B. B. Charan, K. Bux; Subs. B. Sinjh, C. Dutt, Dasrath, F. Menezes, J. D. Khan, K. Dad, L. D. Joshi, M. Sarup, M. Sinjh, M. Amin, M. Ram, T. H. R. Sinjh, S. Ram; Jems. A. W. Khan, A. Prakash, A. Singh, A. N. Kakar, A. Ali, B. Raj, B. D. Pathak, G. Dutt, H. Datt, H. Mohd, I. Khan, L. Sinjh, M. Khan, M. Mohd, M. Ahmed, N. Ram, N. Khan, N. K. K. H. Khan, R. Dhar, S. S. Tewari, S. L. Khare, T. Sinjh, I.A.M.C.

Universities and Colleges

UNIVERSITY OF SHEFFIELD

The University has appointed David Henry Smyth, M.D., M.Sc., Ph.D., to succeed Prof. G. A. Clark, who recently left Sheffield to take a senior post in the Ministry of Health, as Professor of Physiology.

The following appointments were made at a meeting of the University Council held on Oct. 11. *Chair of Child Health:* R. S. Illingworth, M.D., M.R.C.P. *Full-time Lecturers in Medicine:* A. R. Kelsall, M.B., M.R.C.P., and J. Pemberton, M.D., M.R.C.P. *Full-time Tutor in Medicine:* A. Dick, M.D. *Demonstrators in Anatomy:* E. R. Monypenny, M.B., Ch.B., and J. W. Emerson, M.B., Ch.B. *Honorary Demonstrator in Anatomy:* F. J. O'Gorman, F.R.C.S., M.R.C.O.G. *Part-time Assistant Tutor in Medicine:* W. D. Wallace, M.B., M.R.C.P.

The New Department of Child Health

The appointment by the University of a full-time professor in charge of a new Department of Child Health is an important event in the medical life of Sheffield. Some time ago the University, the City authorities, and hospitals consulted together as to the best way in which a Department of Child Health could be established in the University, and circumstances now permit the scheme to be set in motion. The Department will be adequately staffed and will be housed in the Children's Hospital as one of the teaching hospitals associated with the University, and arrangements have also been made for close co-operation with the City General Hospital. The Department's work will be devoted not merely to the diagnosis and treatment of children's diseases but also to the maintenance and raising of the general standard of health of children in Sheffield and surrounding districts. The Department will provide training for medical students and will give postgraduate experience to qualified doctors. It will be a centre of research into the causes and treatment of the diseases to which children are specially liable. Its services will be at the disposal of the public health and education authorities in Sheffield and the vicinity both for advice and consultation. The scheme is ensured of the whole-hearted co-operation of the Board of the Children's Hospital.

Dr. R. S. Illingworth, the newly appointed professor, is a graduate of Leeds and is at present assistant to the Nuffield Professor of Child Health in the University of London. Besides various hospital appointments, he has spent some time in general practice and has held a Nuffield research studentship in medicine at Oxford and a Rockefeller Travelling Fellowship in the U.S.A. During the war he has been a medical specialist in the R.A.M.C. with the rank of Lieut.-Col. He is expected to take up his duties at the beginning of the New Year.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Monthly dinners for Fellows and Members and their guests have now been held at the College for just over a year, the numbers ranging from 40 to 100. Members of Associations linked with the College through the Joint Secretariat and their guests are also eligible. The dinners are held at 7 p.m. on the Wednesday preceding the second Thursday in each month, except August and September. Applications for tickets, accompanied by a remittance of one guinea a head, must reach the assistant secretary of the College, Lincoln's Inn Fields, at least one week before the date of the dinner. The following are the dates for the coming year: Nov. 13, Dec. 11, 1946; Jan. 8, Feb. 12, March 12, April 9, May 7, June 11, and July 9, 1947.

At a quarterly meeting of the Council, held on Oct. 10, with Sir Alfred Webb-Johnson, Bt., President, in the chair, J. P. H. Davies, of Lewes County School, was admitted as a Macloghlin Scholar.

The Council decided to hold an additional Primary Fellowship examination in January, 1947, and an additional Final Fellowship examination in February.

R. J. Last, M.B., B.S., and H. F. Lunn, F.R.C.S., were appointed Anatomical Curators.

Diplomas in Tropical Medicine and Hygiene, Ophthalmic Medicine and Surgery, Child Health, and in Physical Medicine were granted, jointly with the Royal College of Physicians of London, to the following candidates:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. G. Bree, D. J. Conway, M. Mir-Fakhrai, S. T. Nakib, C. J. A. O'Kelly, A. W. Woodruff.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—S. Abel, H. Y. Bakre, P. B. Banaji, E. Benjacar, W. M. de C. Boxill, Mary Campbell, P. Chandra, D. G. Cracknell, R. P. Crick, P. R. Day, D. W. Degazon, K. J. L. de Silva, E. F. J. Dunlop, J. D. J. Freeman, A. I. Friedmann, J. G. Gillan, Irene D. R. Gregory, C. D. Gun-Munro, K. J. Higham, J. J. Kennedy, Marian Lones, E. Lyons, R. L. McKernan, J. M. Mallett, R. MacG. Mathers, R. C. E. Moffat, L. Mushin, J. M. G. Nixon, G. N. Pattison, A. J. G. Pullar, K. B. Redmond, H. N. Reed, E. Riley, C. C. Ring, J. A. Robertson, M. J. Roper-Hall, E. L. N. S. Sack, J. Smallpiece, Helen S. C. Smith, A. H. Staples, R. W. Stephenson, C. Swanston, H. J. R. Thorne, C. R. Todd, H. J. Wales, E. P. Walsh, J. J. Walsh, W. F. Walton.

DIPLOMA IN CHILD HEALTH.—Daphne S. A. Anderson, D. C. Arnott, Katharine M. D. Bailey, C. L. Balf, A. C. Blandy, A. Bogdanovitch, P. T. Bray, Lorna M. Brierley, Marion Brown, F. R. Buckler, A. E. Buckwold, D. J. Conway, N. J. Cook, Pamela J. Coope, Janet E. W. Corland, P. J. N. Cox, W. H. Craike, Rosemary Davies, W. Dickson, J. H. Diggle, Margaret, D. D. Dudley-Brown, Vera S. Emanuel, G. A. Emmerson, Ethel R. Emslie, Linde E. U. Ewald, Ruth M. Fawcett, A. A. H. Gailey, W. H. Galloway, R. E. Glennie, S. G. Hamilton, J. D. L. Hansen, E. W. Hart, Denise O. Henry, Isabella Hood, A. M. Jelliffe, Marion E. Jepson, C. C. Joannides, A. O. John, C. Josephs, Nest Kahan, Gwendoline M. E. Keevil, Elizabeth M. Kingsley Pillers, Kathleen M. Lane, Margaret J. Lezema, H. A. Leggett, K. R. Llewellin, Muriel J. Lowe, P. Macarthur, Alison D. McDonald, N. R. McEvoy, Mary S. McGladdery, Bessie R. Mackenzie, D. McLean, Antionette M. H. MacMahon, W. J. Matheson, J. B. Mehta, E. W. Miles, Mary Milnthorpe, Enid E. Mitchell, Lucille M. Morgan, J. M. Mounsey, Agnes D. D. Murray, P. J. O'Reilly, B. D. Patel, S. H. Patel, Jean W. Paul, J. D. Pickup, E. M. Poulton, P. J. Preston, Ruth Prothero, L. B. Robinson, S. Ruttle, Gwladys M. Sewart, Mary D. H. Sheridan, Katherine V. Smith, Helen M. Wagstaffe, H. R. E. Wallis, L. L. R. White, T. K. Whitmore.

DIPLOMA IN PHYSICAL MEDICINE.—J. H. Crosland, C. R. L'E. Orme, J. D. Stewart.

Diplomas of Membership were granted to P. T. Ballantyne, Hans Dasch, and D. A. Richards.

Dr. Allen Oldfather Whipple was admitted as an Honorary Fellow of the College on Oct. 15, and was afterwards entertained to dinner by the members of the Council. The senior vice-president, Sir Heneage Ogilvie, in presenting Dr. Whipple for admission as a Fellow, described him as a great American surgeon, a pioneer in surgical research, a moving spirit in surgical education, a brilliant operator, an inspiring writer, and a well-loved teacher. Sir Heneage

said that Dr. Whipple had so often directed and helped him in the past that he felt particular pleasure in having him for a brief period in his charge. "We honour him, not for his many distinctions, but for the ability that earned those distinctions, not for the many important offices he holds or has held, but for the outstanding qualities of mind and character that have earned him those appointments. Dr. Whipple's name is printed large on every page of surgical advance, and where other surgeons are breaking new ground and treading fearfully, as they are to-day in the surgery of malignant diseases of the pancreas, there they see Allen Whipple before them saying: 'Here I am. This is the way I have gone, and where I have trodden you may follow safely.'"

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College, held on Oct. 16, the following officers were elected for the ensuing year:

President, Mr. James M. Graham. *Vice-President*, Prof. R. W. Johnstone. *Secretary and Treasurer*, Mr. K. Paterson Brown. *Representative on General Medical Council*, Sir Henry Wade. *Convener of Museum Committee*, Mr. W. Quarry Wood. *Librarian*, Dr. Douglas Guthrie.

The following, having passed the requisite examinations, were admitted Fellows:

N. Alders, C. J. B. Anderson, W. G. Birks, S. K. Burcher, A. G. S. Calder, E. A. Chisholm, L. M. David, F. W. T. Davies, A. J. Freese, G. L. Gale, M. P. Goradia, J. B. M. Green, F. M. Hanna, E. L. John, W. G. Kerr, J. E. Laing, W. H. S. Liebenberg, T. Levitt, A. A. MacGibbon, J. M. McInroy, T. B. McMurray, J. M. Matheson, K. N. Mitra, R. F. O'Driscoll, G. V. Osborne, A. P. R. Pinto, E. C. Richardson, G. K. Riddoch, L. J. Roy, A. R. Taylor, D. J. Waterston, A. Young.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A course of lectures on "Recent Advances affecting Obstetrical and Gynaecological Practice" will be given in the College House (58, Queen Anne Street, W.) on Fridays, Nov. 1, 15, and 29, Dec. 13, and Jan. 10, at 5 p.m. Admission is free, by ticket obtainable from the secretary of the College. Applicants should state for which lectures tickets are required. Details will be published in the diary column of the *Supplement* for the appropriate weeks.

Medical Notes in Parliament

HEALTH SERVICE BILL

Committee Stage in the House of Lords

The Committee Stage of the National Health Service Bill was begun in the House of Lords on Oct. 17.

The House agreed to Clause 1 of the Bill without discussion. On Clause 2 Lord MORAN moved to leave out subsections 3 and 4 dealing with the constitution and duties of Standing Advisory Committees and to substitute the following:

(3) The Central Council may, if the Minister so approves, appoint standing advisory committees for the purpose of assisting them in such manner and subject to such conditions, if any, as they may direct, in the exercise of their functions under subsection (1) of this section in regard to all or any matters relating to particular services provided under this Act. Any such standing advisory committee may consist either wholly of members of the Central Council or partly of members of the Central Council and partly of other persons being persons of experience in the particular service or services with which the committee is concerned.

Lord Moran said he was anxious to make the Bill of value and did not wish to be associated with wrecking amendments. He moved this amendment to strengthen the Central Health Services Council. The difference between the Bill as it stood and his amendment was that in the Bill the Minister appointed Standing Committees and they reported directly to him. In his amendment the Council appointed these Standing Committees and they reported through the Council to the Minister. There was a general feeling throughout the profession, and the Negotiating Committee was unanimous, that if the Bill passed as it stood the Standing Committees would do the work and the Central Health Services Council would be robbed of its chief function. At the present time those actively engaged in the practice of their profession played little part in administering the health services and it was hoped that this Central Council would be a means by which those engaged in active practice could take an active part not merely once or twice a year but in everything important concerning health which came before the Minister.

In the House of Commons Mr. Bevan, in trying to define what the Central Health Services Council could do, gave as an example that the Central Council could not advise the Minister on putting up a gynaecological service. Lord Moran took that example and explained that at present there was a dispute in the profession. The British Medical Association felt that every practitioner on the *Register* should have the right to attend midwifery cases. The Royal College of Obstetricians and Gynaecologists felt that only a practitioner who had special training should be allowed to attend confinements. Both felt strongly on this point. Supposing that the dispute had to be referred to the Committee of Gynaecologists the answer would not be in doubt but would not bring conviction to the profession generally. The Central Council should adjudicate between these two sections of the profession. The Minister, when he dealt with matters concerning general practitioners, had got into the habit—the right habit—of consulting the British Medical Association. He had not yet established the equally healthy habit of consulting the bodies which represented consultants and specialists. If the Bill was to be a success Parliament must make the profession feel it was responsible for that success. With the profession behind it there was some chance that the whole scheme would work really well.

The LORD CHANCELLOR (Lord JOWITT) said the Government could not accept the amendment. He himself had to sit on a body which consisted of less than twenty members but which found that the only way to get through its business was to refer a large number of specialist questions to subcommittees with power to act. Before the Minister appointed Standing Committees he had to consult with the Central Health Services Council. The Bill provided that the Standing Committees could report direct to the Minister but should also send a copy of their report to the Central Council so that the Council could make observations on it. That was a better plan than the Council of forty-one, which was bound to be unwieldy. Suppose there was a question relating to dentistry, was it necessary that the Government should wait for the report of the forty-one members, of whom two were registered pharmacists, one a midwife, and two registered nurses?

Lord MORAN said that the amendment only asked that the Central Council should appoint its own subcommittees rather than that committees which were not really subcommittees should be appointed by someone else. In view of what the Lord Chancellor had said he withdrew the amendment.

Lord MUNSTER asked Lord Jowitt to explain the provision in Clause 2 which said that the Minister, after consultation with the Central Council, could refrain from laying the annual report of that Council before Parliament if he was satisfied that it would be contrary to the public interest.

The LORD CHANCELLOR said the report might include matters connected with war or about a promising discovery made with regard to cancer which it would be undesirable in the public interest to release too soon. Apart from rare cases of that sort he did not think that the proviso would have to operate so long as peace remained.

The House then agreed to Clause 2 and Clause 3. On the motion of the LORD CHANCELLOR a drafting amendment was made in Clause 4 (Accommodation Available on Part Payment). In the same Clause the EARL OF MUNSTER moved to insert a proviso that where there was provided in any hospital accommodation in single rooms or small wards such accommodation should not be converted into larger rooms or wards. Lord Jowitt gave an assurance that such rooms would not be converted unless this was found necessary in the interests of the services provided by the hospital as a whole or in the wider interests of the co-ordinated hospital service. Lord MUNSTER withdrew his amendment but said he still feared that on account of the shortage of hospital accommodation Mr. Bevan would be forced to remove the whole of the private accommodation in many hospitals. Clause 4 was agreed to.

Accommodation for Private Patients

On Clause 5, subsection (2) begins: "The Minister may allow any medical practitioner serving on the staff of a hospital providing hospital and specialist services to make arrangements for the treatment of his private patients either at that hospital or at any other hospital."

Lord LLEWELLIN moved to omit from this passage the words "serving on the staff of a hospital providing hospital and specialist services." He said the amendment would allow a doctor to follow his patient into a hospital even though that doctor was not a specialist on the staff of that hospital and would allow a patient to continue under the same doctor. The doctor who suited a patient best was the one who knew that patient's past history and had his confidence.

Lord SALTOUN said this difficulty was found in many hospitals to-day and was often covered by the hospitals making all

medical practitioners within a certain range honorary members of their staff.

Lord Horder said that from the medical angle he gave emphatic support to the amendment. It was greatly in the interest of the patient on personal and on medical grounds that continuity should be preserved.

Lord Listowel said that under the Bill a doctor who remained outside the public service could give institutional as well as domiciliary treatment to his patients. The patient could have an operation in a nursing home from a doctor who remained outside the service. The amendment would allow a specialist or general practitioner who chose to stay outside the public service to use for his private work hospitals provided at the public expense.

Lord Cranborne said the patient had made his contribution to the State scheme and the Opposition felt that when he entered the State hospital he should be limited only to the State treatment. The medical practitioner who was not a member of the State service could not under the Clause as it stood even arrange for his patient to be treated by somebody else at a State hospital. That practitioner was completely outlawed. The position was utterly unjustifiable. He could not believe that the people intended in setting up a State service that there should be this divorce between a physician and his patient. The Opposition favoured a State service but did not believe that there should be a continual whittling down of private practice so that in effect it was really useless.

Lord Addison said the practice of attaching medical practitioners in a district to a hospital was quite common. These men could take their patients in and no question would arise. But a hospital was an organization run by the staff and when medical practitioners outside sent their patients into the hospital they did not follow them themselves. The patients were treated by a member of the staff of the hospital and that was what the Bill proposed. The amendment proposed that for the purpose of private nursing a medical man would send his patient in, follow the patient in and thereby become a member of the staff. Hospitals could not be run on that indiscriminate basis. The practice now in existence was satisfactory.

Lord Swinton said that if, as Lord Addison had argued, there was to be no alteration in the existing position there need be no Clause. The effect of the Clause was to give a special privilege to a particular class of doctor. Lord Llewellin asked whether the words "serving on the staff" which were used in the subsection meant a full-time doctor on the staff. Lord Addison said they did not. Lord Llewellin said he felt there might be some misunderstanding and his friends would like to reconsider the matter. He withdrew his amendment and Clause 5 as previously amended was agreed to.

Transfer of Hospitals to the Minister

Lord Listowel said Clause 6 as drafted was too wide. It would transfer to the Minister property belonging to local authorities which was not part of a hospital. It would, for instance, transfer to him a site which had been bought for the purpose of building a hospital but had not been so used. He proposed an amendment to alter the wording of subsection (2) in order to afford protection to the local authorities. The House accepted the amendment.

Lord Iddesleigh moved to provide that on the transfer to the Minister of a voluntary hospital having associations which linked it with a particular religious organization regard should be had in the general administration and in making appointments on the management committee and the staff to the preservation of that hospital's character and associations. He instanced The Retreat (the mental home provided by the Society of Friends), the Jewish Hospitals, and the numerous Roman Catholic hospitals.

The Lord Chancellor said Mr. Bevan had already given an undertaking broadly on those lines. The Minister could not sacrifice medical considerations, but so far as practicable it was right that the Ministry should maintain and uphold the denominational character of these hospitals. He would look into the matter before the Report Stage and see how far he could go to meet Lord Iddesleigh

The amendment was withdrawn and the House agreed to Clause 6.

On Clause 7 Lord Maugham moved to insert at the end of subsection (4) a proviso that in the case of any endowments for which a special application or appropriation had been directed or declared by the donor, the Minister should, so far as practicable, secure that the directions of the donor should not be prejudiced.

Lord Reading, Lord Llewellin, Lord Saltoun, and the Duke of Montrose supported the amendment.

The Lord Chancellor said that whereas with regard to the teaching hospitals no redistribution of funds was contemplated it was of the essence of the National Health Service Scheme that there should be a redistribution of the funds of the voluntary hospitals. The Chancellor of the Exchequer had been persuaded to agree that the endowments of voluntary hospitals should remain for teaching purposes so that the hospitals would have a cushion between themselves and the rigour of Treasury control, but there were also the municipal hospitals who had no endowments and some voluntary hospitals which were inadequately endowed. It therefore seemed right to the Government that there should be a redistribution of endowments of voluntary hospitals so that all the hospitals which were going to form part of a common service should be able to share in the proceeds. It was probable that the capital value of the endowments was about £50,000,000, but that contained part of the endowments of the teaching hospitals.

Lord Llewellin said the object of the amendment was to ensure that hospitals, or parts of hospitals, given as war memorials were continued. Lord Maugham thought that the action contemplated by the Government was a breach of trust. Lord Samuel did not think that the purposes of ancient endowments would be satisfied if the old voluntary hospitals were continued with comforts and amenities while the municipal hospitals were bare and barren of additional comforts. What the donors desired was that the sick should be well cared for and happy.

Lord Londonderry said he understood that if a hospital was well endowed and could produce an income every year the Exchequer would provide a lesser sum for the benefit of that hospital than if the circumstances were otherwise.

The Lord Chancellor replied that that was not so. He said he could not weaken on this question. If money was left for the Reigate Hospital the intention of the Government was that this money should be taken, put into the pool, and distributed among other hospitals. If there were some special case such as that of a gift which involved the maintenance of a garden he would consider whether he could devise some words to meet it provided these words were confined to special cases.

The amendment was withdrawn and Lord Llewellin moved to add after subsection (4) a proviso dealing with the interim period before the appointed day. Those who in the past had done good work collecting money for hospitals still wished to collect sums for such things as additional comforts but feared that if they did so the money would go into the Endowment Fund. His amendment was that in the interim period a little fund could be built up.

The Lord Chancellor said he felt sympathy about this matter. It was unlikely that between the passing of the Bill and the appointed day charitably minded people would leave money to the hospitals if they knew that on the appointed day it would be taken into a fund and pooled. He would see whether before the Report Stage he could devise some appropriate form of words to meet this important point.

The amendment was withdrawn and the Committee agreed to drafting amendments proposed by Lord Listowel. Clause 7 as amended was then agreed to and Clause 8 was adopted without amendment.

The House then adjourned.

Functions of Management Committees

The Committee stage of the Bill was resumed on Oct. 21.

On Clause 12 Lord Luke moved an amendment to readjust the functions as between the regional boards and the hospital management committees. He said that the management committees or groups of hospitals should have powers from the regional boards similar to those enjoyed from the Minister by the teaching hospitals. To take the appointment of hospital staff away from the management committees would bring about a divided loyalty and would introduce the factor of remote control. If the Minister wanted responsible people to be members of management committees he should give them suitable responsibilities.

The Lord Chancellor agreed that the success of the scheme would depend almost entirely upon a very wide measure of delegation. The real issue was on the question of machinery. It would be prescribed by regulation that the management committees should do all things in regard to the day-to-day running of hospitals and incurring expense on behalf of the regional boards, but questions of major policy would be for the boards.

Lord Llewellin said that this was doing it the wrong way. In the Bill as drafted the hospital management committees were left with no powers, and he wanted it to be seen in the Bill that there was a real job of work to be done by these committees, otherwise people would not be prepared to serve on them. Viscount Simon said it should be possible to make it plain in the actual language of the Bill—and not leave it to regulations after the Bill had been passed—that the committees were going to have a job left to them.

Vitamins in disorders of the circulation

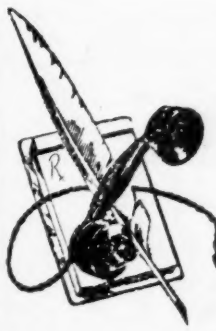
The following are suggestions for the application of vitamin therapy in certain disorders of the circulation. Other conditions of the circulatory system were dealt with in a similar form in the last issue of this Journal.

Condition	Indications	Therapeutic Agents
BLOOD DISEASES. Anaemias.	Iron deficiency anaemias are frequently complicated by vitamin deficiencies.	**COMPLEVITE.** Tablets of 2 colours to be taken in equal numbers. One of each colour thrice daily provides: Vitamins: A 4,000 i.u.; B_1 0.60mg; C 20.0mg; D 300 i.u. Minerals: Ca - 160 mg.; Fe - 68 mg.; Iodine, Mn., Cu not less than 10 p.p.m.
	The macrocytic anaemias such as Addisonian pernicious anaemia and sprue have been found in preliminary trials to respond to folic acid.	It is hoped that folic acid will soon be available in this country for therapeutic trial.
Hypoprothrombinaemia Haemorrhagic disease of the new-born.	The prothrombin is normally low for the first few days of life.	**VITAMIN K, VITAMINS LTD.** One tablet (10 mg.) daily to the mother during the last month of pregnancy or every 6 hours if seen first in labour, or 5 mg. by injection to the infant.

Further particulars of the various vitamin products are obtainable on request from

Vitamins Limited

(Dept B.X.H.7. , Upper Mall, London, W.6



write . . . . or phone

OUR MEDICAL INFORMATION DEPT. . . . they will be glad to give you full details of this or any other of our products.

TELEPHONE - - - ILFord 3060 Extensions 99 and 100

TELEGRAMS - Bismuth Phone London

'THEOGARDENAL'

TRADE MARK BRAND

Theobromine and Phenobarbitone Tablets

There is no doubt about the relief experienced by hypertensives when taking 'Theogardenal,' especially when attention is paid to dietary control. It has no cumulative effect and is well tolerated even when prescribed over lengthy periods.

MANUFACTURED BY

MAY & BAKER LTD.

DISTRIBUTORS

PHARMACEUTICAL SPECIALITIES (MAY & BAKER) LTD. DAGENHAM

9067

TRADE MARK **'AMYTAL'** BRAND

ISO-AMYL ETHYL BARBITURIC ACID

For Simple Insomnia

For simple insomnia caused by physical or mental strains, fatigue, or worry, 'Amytal' supplies the necessary relaxation and sleep. Upon awakening the head is clear; there is no after depression; energy and self-confidence are restored.

'Amytal' is supplied in ¼ grain, ¾ grain, and 1½ grain tablets.

ELI LILLY & COMPANY LTD.

BASINGSTOKE AND LONDON

THE CHOICE OF A SULPHONAMIDE

For the treatment of bacterial infections the sulphonamide preferred is one of high antibacterial activity, by means of which therapeutic blood levels can be rapidly achieved and easily maintained, with minimal toxic manifestations.

These desiderata are to be found in 'Sulphamezathine', a new sulphonamide which many authorities consider to be the drug of choice for use in pneumonia, meningitis, haemolytic streptococcal infections and *Bact. coli* infections of the urinary tract.

Highly efficient therapeutically, 'Sulphamezathine' is well tolerated and has little tendency to produce unpleasant effects such as nausea, vomiting or cyanosis. By reason of its ready solubility, renal complications are rarely encountered—a decided advantage over many sulphonamides.

Powder: Containers of 25 grammes, 100 grammes and 500 grammes.
Tablets: 0.5 gramme: Containers of 25, 100 and 500.
Ampoules: 1 grammie (in 3 c.c.): boxes of 6 and 25.
3 grammes (in 9 c.c.): boxes of 5 and 25.

Obtainable through your usual suppliers.

Literature will be forwarded on request.

'SULPHAMEZATHINE'
brand
SULPHADIMETHYLPYRIMIDINE B.P.C.

A product of
IMPERIAL CHEMICAL (PHARMACEUTICALS) LTD.
THE RIDGE, BEECHFIELD ROAD, ALDERLEY EDGE, MANCHESTER

Ph.1501

EVANS

PROTEOLYSIS

has made available a new high potency

NEO-HEPATEX

A Liver Extract for injection which requires only one dose of 2 c.c. in 14 days to restore the blood picture and usually not more than 2 c.c. monthly for maintenance purposes

The 2 c.c. dose is equivalent to fourteen daily doses each of ½ lb. of lightly cooked liver.

Issued in ampoules of 2 c.c. and in bottles of 10 c.c. and 25 c.c.

Literature gladly sent on receipt of request

Made in England by

Evans Medical Supplies Ltd

Speke LIVERPOOL 19 — Bartholomew Close LONDON EC1

RADIOSTOL Trade Mark

(VITAMIN D_2)

Radiostol is calciferol in a highly-purified form, and it is eminently suitable for administration in the treatment of arthritis and lupus in which conditions high dosage is necessary.

For convenience in administration Radiostol is issued in solution in oil containing 100,000 and 200,000 international units per gramme (for use in arthritis) and in capsules each containing 50,000 international units per gramme (for use in lupus). For routine use in the prevention and treatment of vitamin D deficiency states solution in oil, 3,000 international units per gramme (Liq. Calciferol B.P.), and pellets, each containing 3,000 international units, are available. Further details will be gladly supplied on request.

B.D.H.

THE BRITISH DRUG HOUSES LTD. LONDON N.1

Rs/E/488a

It is hoped that Doctors will accept this invitation to inspect this *new* sanitary tampon.

Every carton of Lil-lets Sanitary Tampons states that the unmarried woman and young girl should only use tampons if recommended to do so by her doctor. . . . You will wish to examine that upon which you may be asked for advice.

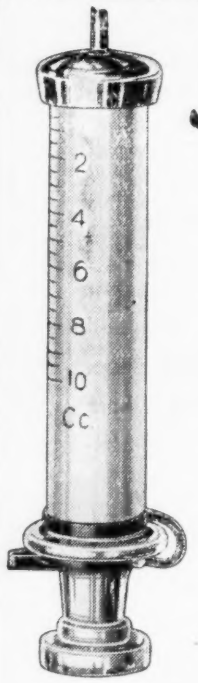
An uncompressed specimen, together with the carton of one dozen as sold commercially will be sent on receipt of professional card, and this will enable doctors to examine the construction, size, finish and packing of Lil-lets.

Lil-lets are sanitary towels compressed to small tampon shape. They are made of highly absorbent cotton, wholly contained in fine absorbent gauze to eliminate risk of particles becoming detached. Each is coated with a thin, instantly soluble and innocuous film which assists easy insertion without requiring an applicator. Receipt of your professional card without other enclosure will be taken as permission to send the specimens.

Lil-lets TRADE MARK

A product of T. J. Smith & Nephew, Ltd., Hull.
Makers of Elastoplast

VIM' NEEDLES DESERVE



REGD. TRADE MARK

Milward's **VIM SYRINGES**

RECORD FITTING

The 'Good Point' in Vim Needles has many counterparts in Vim Hypodermic Syringes. These include—special 'heat-resistant,' 'slow-ground' glass; *individually* mated glass plungers working in *individually* calibrated barrels; superb craftsmanship.

SPECIAL NOTICE.—With Vim Syringes, sterilization is possible by AUTOCLAVING—one of the methods recommended by the Medical Research Council in War Memorandum No. 15.

SAMPLE NEEDLE and particulars from Chas. F. Thackray Ltd., Park St., Leeds, or 252, Regent St., London, W.1

REPAIR SERVICE AVAILABLE

Sizes 1 c.c. to 20 c.c.

Chas. F. Thackray LTD.

Sole British & Empire Distributors (except Canada)

THE OLD MEDICAL SCHOOL, PARK ST., LEEDS 1. Telephone 20085

The LORD CHANCELLOR said that it would be possible to do what the amendment suggested, but quite deliberately it was not being done. It was provided that the hospital management committees might exercise on behalf of the regional hospital boards certain functions which were to be prescribed. He wanted the boards to leave a very wide discretion to the hospital management committees, and he believed that that was the best way of securing a co-ordinated system.

Viscount CRANBORNE asked that the Government should give the matter a little more thought. The LORD CHANCELLOR undertook to consider the matter further and the amendment was withdrawn.

Teaching and Research Facilities

Lord MORAN moved an amendment the main purpose of which was to ensure the setting up of medical staff committees in the hospitals. He said that in the voluntary hospitals there were such committees who kept the hospitals up to date. The matter was important because it was the very root of the efficiency of the administration of the voluntary hospitals.

Lord HORDER said he would be satisfied with an assurance that it would be within the power of the hospital management committees to encourage the setting up of medical staff committees.

The LORD CHANCELLOR said that he would desire to encourage the setting up of medical staff committees rather than providing that the hospital management committees should arrange for them to be set up. The initiative of the medical staffs on this matter would not only be welcomed but it would be regarded as lamentable if they did not take the initiative. He was reluctant, however, to put a provision in the Bill, and preferred to leave it to regulations. The amendment was, by leave, withdrawn.

Lord MORAN moved a further amendment to secure that the board of governors of every teaching hospital should provide those facilities for medical teaching and research required by the university or medical school with whom the teaching hospital was associated. He feared that in time the board of management might feel that there was extravagance and that more was being done than the comfort of the patient warranted, with a consequent weakening of teaching and research in the hospital. Lord HORDER and Lord CHERWELL supported the amendment.

The LORD CHANCELLOR said that it was fundamental that there should be facilities for teaching and research, but he thought it was going a little too far to provide whatever facilities the universities might require. He undertook to see if some suitable words could be drafted to meet the point. The amendment was withdrawn.

Legal Status of Management Committees

On Clause 13 Lord LLEWELLIN moved an amendment to provide that hospital management committees might sue or be sued, and have their own right to make contracts for the daily services of the hospital. He said that if they had to refer back to the regional boards they would become mere ciphers and there would be a complete lack of decentralization.

The LORD CHANCELLOR said that in certain of their actions the management committees could sue or be sued in the ordinary way. It was only when they were acting on behalf of the regional boards that they could not. In a co-ordinated scheme there must be a chain of authority involving the Minister at the top, the regional board, and the management committee acting on behalf of the board. It did not mean that the management committees were mere ciphers any more than estate agents were.

Viscount CRANBORNE said that the logical conclusion to draw from the Lord Chancellor's argument was that the only really responsible person was the Minister, and yet certain responsibilities were conferred on the regional boards. In that case, why not confer responsibilities on the management committees?

Lord INMAN said that he had received numerous letters from people who were leaving voluntary hospital work because they were losing their responsibilities, and he hoped that a compromise might be reached.

The amendment was carried against the Government by 59 votes to 17—Opposition majority, 42.

Appointment of Officers

On Clause 14 Lord LUKE moved an amendment which would have the effect of enabling appointments of staff to be in the hands of hospital management committees instead of in those of the regional hospital boards, as the Bill proposed.

The EARL OF LISTOWEL said that in fact the whole of the medical, nursing, and domestic staffs, except for a few specialists at the top, would be chosen, appointed, and if need be dismissed by the hospital management committees. Lord LLEWELLIN said that it did not appear from the terms of the Bill that the Minister would be able to make regulations to that effect, since the staffs who looked after the hospitals would be officers of the regional boards.

The LORD CHANCELLOR said he could not state what the regulation would be, but the broad line was that certain matters would be within the province of the committees, including the appointment and dismissal of staff—with the exception of the senior staffs. He did not think there would be anything in the nature of an appeal to the regional hospital board in the case of a member of the staff being dismissed. Viscount CRANBORNE said that the Opposition wanted the hospital management committees to be able to appoint and dismiss staffs, and they insisted that that should be put in the Bill.

Viscount ADDISON said that amendments such as this would torpedo the possibility of a regional scheme. Lord LLEWELLIN said that they had been assured that these officers would, when the regulations came out, be officers of the regional board, but in fact they would be subject to dismissal by the management committee. It should be shown in the Bill to whom these officers really belonged. Lord INMAN said there were advantages in the Government's scheme. It would be convenient, for instance, to have accountants spread throughout a region and not attached to one hospital. Nurses, too, liked to move from one hospital to another, and did not want to be tied to one particular hospital. Viscount CRANBORNE suggested that there might be some differentiation between types of officers. As the word was used it covered both a hall-porter and a lung specialist, and whereas there would be advantages in a specialist ranging throughout an area that advantage would not apply to a porter. The amendment was negatived.

Maternity and Child Welfare

On Clause 19 Lord BALFOUR OF BURLEIGH moved an amendment to give power to the L.C.C. to delegate maternity and child welfare and ancillary services to the City and the metropolitan boroughs. He said that in the autumn of 1945 this arrangement was unanimously recommended at a meeting of the L.C.C., and no one had yet explained why they had changed their minds. Rumour had it that Lord Latham had said it should be so and it was so. In that case Lord Latham was a dictator, and this mixture of Hitlerism and bumbledom should be swept from the Bill. The MARQUESS OF ABERDEEN and Lord JESSEL supported the amendment.

The LORD CHANCELLOR said that at the time the L.C.C. passed the resolution they were going to keep their hospitals, and since they did not want too much on their plate they were prepared to delegate these services. But now that they were losing their hospitals they had the time and the ability to conduct these other services. The functions that remained with the L.C.C. were the provision of health centres, at which most of the functions of maternity and child welfare would be carried out, domiciliary midwifery, the ambulance service, and the care and after-care of the sick. The Government thought it desirable to concentrate responsibility for the health services on the local authorities in any given area in one authority. Would it be wise to place responsibility for maternity and child welfare in the hands of the metropolitan boroughs while keeping responsibility for domiciliary midwifery in the county council? Was it wise to leave provision for health centres for general medical and dental services with the L.C.C. while leaving maternity clinics and infant welfare centres with the borough councils? The amendment would increase administrative friction and difficulty, and produce a loss of efficiency and co-ordination. The amendment would be a retrograde step. By all means let the county council develop on a regional basis and take in representatives of the borough councils, but it would not be wise or sensible administration to have one body dealing with the under-fives and another with the over-fives.

The EARL OF MUNSTER, the MARQUESS OF READING, and Lord LLEWELLIN supported the amendment, which was carried—again against the Government—by 35 votes to 15—Opposition majority, 20.

Bread and Chalk

Answering Sir ERNEST GRAHAM-LITTLE on Oct. 8, Mr. STRACHEY said the amount of creta preparata which was added to flour had been decided after consultation with the scientific and medical advisers of the Ministry of Food and after recommendations had been made by the Medical Research Council and considered by the Standing Committee on Medical and Nutritional Problems. These bodies included leading physicians. It was not proposed to add to their numbers. Mr. Strachey thought it was preferable to continue to use the accurate term "creta preparata" for the substance, conforming to the specification of the *British Pharmacopoeia*, which was added to flour. Sir. E. Graham-Little suggested the use,

Bronze Star Medal: Brig. (Temp.) M. L. Formby, Capt. T. W. Renton, and Lieut. J. G. Searle, R.A.M.C. *Typhus Commission Medal:* Brigs. R. W. Galloway, C.B., C.B.E., D.S.O., and G. S. Parkinson, and Col. (acting) H. D. Chalke, O.B.E., R.A.M.C.

The decoration of Commander of the Order of the Crown has been conferred upon Maj.-Gen. E. Phillips, K.B.E., C.B., D.S.O., M.C., late R.A.M.C., by the Prince Regent of Belgium in recognition of distinguished services in the cause of the Allies.

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services while prisoners of war in Japanese hands:

O.B.E. (Military Division).—Wing Cmdr. C. W. Coffey, Acting Wing Cmdr. D. Magrath, R.A.F., and Acting Squad.-Ldr. J. A. MacCarthy, G.M., R.A.F.O.

M.B.E. (Military Division).—Fl.-Lieuts. F. A. Forbes, J. Lillie, F. W. Parke, F. R. Philps, W. N. Riley, and W. F. Tierney, R.A.F.V.R.

Mentioned in Dispatches.—Acting Squad.-Ldr. D. A. Duthie, R.A.F.O., Fl.-Lieuts. R. G. Blackledge (deceased), R. F. Braithwaite, M. H. Kinmonth, L. C. Liddell, and J. Simpson, R.A.F.V.R.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Burma:

Brig. (Temp.) J. P. MacNamara; Brigs. (Acting) R. R. Bomford, P. Wiles Cols. (Temp.) R. A. Anderson, O.B.E., J. D. Driberg, P. J. Stokes, T.D.; Cols (Acting) A. B. Dempsey, R. R. Leaning, O.B.E.; Lieut.-Cols. P. H. R. Anderson, A. J. Dalzell-Ward; Lieut.-Cols. (Temp.) G. T. Ashley, H. L. Ellis, G. J. Evans, P. P. Fox, W. R. N. Friel, W. G. Garrow, W. H. Graham, K. H. Harper, G. C. Hernan, M. S. Holman, C. H. Hoskyn, O.B.E., R. H. Isaac, K. Kumar, D. A. Lowe, G. G. Mer, O.B.E., R. S. Ogborn, R. A. Philp, R. K. Pilcher, M.C., J. R. Squire, H. Stevenson, J. C. Watts, M.C., A. L. Wilson; Lieut.-Cols. (Acting) I. Calvert-Wilson, T. K. Howat, H. L. Wolfe; Majors (Temp.) A. M. Hutton, J. C. Coates, A. Colbert, J. O. Collin, H. W. F. Croft, J. P. Donnel, H. F. Ferguson, A. Gould, E. J. Harrison, R. G. Henderson, J. Hemphill, N. Leitch, P. F. MaGuire, A. L. R. Mayer, A. I. McCallum, J. A. McPherson, R. Murray, J. O'Hara, N. C. Porter, J. A. Ritchie, W. T. Walker, M.B.E., G. Wynne-Griffith; Majors (Acting) K. T. Grey, J. W. Miller, W. G. Mills; Capts. R. M. Allan, R. F. Antonio, G. D. G. Barnes, R. H. Bowie, E. G. Dryburgh, R. C. Evans, J. A. S. Forman, C. R. Forrest, P. Fuchs, J. C. Heskith, K. Heslop, L. P. Hodgson, N. B. Jones, S. H. Madden, W. D. Mail, P. L. Masters, S. J. T. Merryfield, C. E. S. Myers, M.B.E., B. A. Protheroe, I. Reubin, A. C. Ritchie, P. R. Robinson, K. R. Urquhart, J. A. K. Wallace, G. L. Whitmore; Capts. (Temp.) K. W. Andrews, J. W. Hitchens, F. H. Kelland, G. W. Park, D. H. Rea, A. Smith. R. B. C. Smith, M. W. Stock, W. T. Stone; Capts. (Acting) S. D. Cuthbertson, A. Harrop, A. T. Makin; Lieuts. F. Birch, A. E. Davies, H. Harris, A. I. Hyman, D. I. Jones, J. W. Lewis, G. F. Strickett, R.A.M.C. Cols. (Temp.) F. R. Cawthorn, O.B.E., B. R. Tandon; Cols. (Acting) Avyaktanand, M.B.E., D. R. Cattanach, D. K. L. Lindsay, O.B.E.; Lieut.-Col. K. M. Unnikrishnan; Lieut.-Cols. (Temp.) G. V. Chaphekar, M.B.E., A. N. De Monte, M.B.E., M.C., G. T. M. Hayes, J. R. Kerr, D.S.O., W. N. Niblock, J. P. O'Riordan, G. A. Ransome, F. W. Snedden, G. B. R. Walkey, J. L. M. Whitbread; Lieut.-Cols. (Acting) B. Bhattacharjya, W. F. J. M. Thom, V. R. Mirajkar; Majors (Temp.) A. H. Vatsyayan, C. R. K. Carroll, A. L. D'Cunha, C. A. Fegredo, F. M. F. Forrest, M. W. Grunstien, F. G. Millar, M. G. Hyder, A. C. Molden, N. U. Khan, P. Shankaran, S. K. Sen, D. S. B. Stephens, U. P. D. Gupta, E. Watson, J. G. Webb; Majors (Acting) G. S. Dhaliwal, K. L. Chittwal, J. J. D. Lobo, A. S. Reilly, J. H. York; Capts. A. K. Bose, B. S. Dhillon, B. N. Chatterjee, B. N. Bali, B. Bakhshi, C. M. Patnaik, C. K. Kurup, C. J. David, C. L. Bahl, V. N. Datar, G. W. D'Sena, D. H. Biswas, G. S. Godiwalla, M. R. Gopal Aratham, K. Govindarajulu, H. K. Ray, H. B. Parelwali, H. Reza, J. M. Bose, K. V. G. Kurup, M. Sinjh, M. Dutt, M. Raja, C. P. Nair, M.B.E., N. M. Maitra, N. Talukdar, N. S. Ahluwalia, C. M. Patnaik, J. M. Pinto, P. P. Ramadivi, R. N. Dutta, S. P. Ghose, S. Prasad, S. K. Mazumdar, S. Sinjh, R. M. S. Terry, T. Karunakaran; Capts. (Temp.) P. S. Bhat, B. R. Chaudhuri, D. B. Patnaik, C. R. Peck, P. Chandra, Rangaraj, N. N. Santhanam, Shrivastava, T. R. Sibramanian; Capt. (Acting) A. K. Mitra; Lieuts. I. A. Khan, J. N. Ghosh, S. J. Mascarenhas; Sub.-Majors B. B. Charan, K. Bux; Subs. B. Sinjh, C. Dutt, Dasrath, F. Menezes, J. D. Khan, K. Dad, L. D. Joshi, M. Sarup, M. Sinjh, M. Amin, M. Ram, T. H. R. Sinjh, S. Ram; Jems. A. W. Khan, A. Prakash, A. Singh, A. N. Kakar, A. Ali, B. Raj, B. D. Pathak, G. Dutt, H. Datt, H. Mohd, I. Khan, L. Sinjh, M. Khan, M. Mohd. M. Ahmed, N. Ram, N. Khan, N. K. K. H. Khan, R. Dhar, S. S. Tewari, S. L. Khare, T. Sinjh, I.A.M.C.

Universities and Colleges

UNIVERSITY OF SHEFFIELD

The University has appointed David Henry Smyth, M.D., M.Sc., Ph.D., to succeed Prof. G. A. Clark, who recently left Sheffield to take a senior post in the Ministry of Health, as Professor of Physiology.

The following appointments were made at a meeting of the University Council held on Oct. 11. *Chair of Child Health:* R. S. Illingworth, M.D., M.R.C.P. *Full-time Lecturers in Medicine:* A. R. Kelsall, M.B., M.R.C.P., and J. Pemberton, M.D., M.R.C.P. *Full-time Tutor in Medicine:* A. Dick, M.D. *Demonstrators in Anatomy:* E. R. Monypenny, M.B., Ch.B., and J. W. Emerson, M.B., Ch.B. *Honorary Demonstrator in Anatomy:* F. J. O'Gorman, F.R.C.S., M.R.C.O.G. *Part-time Assistant Tutor in Medicine:* W. D. Wallace, M.B., M.R.C.P.

The New Department of Child Health

The appointment by the University of a full-time professor in charge of a new Department of Child Health is an important event in the medical life of Sheffield. Some time ago the University, the City authorities, and hospitals consulted together as to the best way in which a Department of Child Health could be established in the University, and circumstances now permit the scheme to be set in motion. The Department will be adequately staffed and will be housed in the Children's Hospital as one of the teaching hospitals associated with the University, and arrangements have also been made for close co-operation with the City General Hospital. The Department's work will be devoted not merely to the diagnosis and treatment of children's diseases but also to the maintenance and raising of the general standard of health of children in Sheffield and surrounding districts. The Department will provide training for medical students and will give postgraduate experience to qualified doctors. It will be a centre of research into the causes and treatment of the diseases to which children are specially liable. Its services will be at the disposal of the public health and education authorities in Sheffield and the vicinity both for advice and consultation. The scheme is ensured of the whole-hearted co-operation of the Board of the Children's Hospital.

Dr. R. S. Illingworth, the newly appointed professor, is a graduate of Leeds and is at present assistant to the Nuffield Professor of Child Health in the University of London. Besides various hospital appointments, he has spent some time in general practice and has held a Nuffield research studentship in medicine at Oxford and a Rockefeller Travelling Fellowship in the U.S.A. During the war he has been a medical specialist in the R.A.M.C. with the rank of Lieut.-Col. He is expected to take up his duties at the beginning of the New Year.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Monthly dinners for Fellows and Members and their guests have now been held at the College for just over a year, the numbers ranging from 40 to 100. Members of Associations linked with the College through the Joint Secretariat and their guests are also eligible. The dinners are held at 7 p.m. on the Wednesday preceding the second Thursday in each month, except August and September. Applications for tickets, accompanied by a remittance of one guinea a head, must reach the assistant secretary of the College, Lincoln's Inn Fields, at least one week before the date of the dinner. The following are the dates for the coming year: Nov. 13, Dec. 11, 1946; Jan. 8, Feb. 12, March 12, April 9, May 7, June 11, and July 9, 1947.

At a quarterly meeting of the Council, held on Oct. 10, with Sir Alfred Webb-Johnson, Bt., President, in the chair, J. P. H. Davies, of Lewes County School, was admitted as a Macloghlin Scholar.

The Council decided to hold an additional Primary Fellowship examination in January, 1947, and an additional Final Fellowship examination in February.

R. J. Last, M.B., B.S., and H. F. Lunn, F.R.C.S., were appointed Anatomical Curators.

Diplomas in Tropical Medicine and Hygiene, Ophthalmic Medicine and Surgery, Child Health, and in Physical Medicine were granted, jointly with the Royal College of Physicians of London, to the following candidates:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. G. Bree, D. J. Conway, M. Mir-Fakhrai, S. T. Nakib, C. J. A. O'Kelly, A. W. Woodruff.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—S. Abel, H. Y. Bakre, P. B. Banaji, E. Benjacar, W. M. de C. Boxill, Mary Campbell, P. Chandra, D. G. Cracknell, R. P. Crick, P. R. Day, D. W. Degazon, K. J. L. de Silva, E. F. J. Dunlop, J. D. J. Freeman, A. I. Friedmann, J. G. Gillan, Irene D. R. Gregory, C. D. Gun-Munro, K. J. Higham, J. J. Kennedy, Marian Lones, E. Lyons, R. L. McKernan, J. M. Mallett, R. MacG. Mathers, R. C. E. Moffat, L. Mushin, J. M. G. Nixon, G. N. Pattison, A. J. G. Pullar, K. B. Redmond, H. N. Reed, E. Riley, C. C. Ring, J. A. Robertson, M. J. Roper-Hall, E. L. N. S. Sack, J. Smallpiece, Helen S. C. Smith, A. H. Staples, R. W. Stephenson, C. Swanston, H. J. R. Thorne, C. R. Todd, H. J. Wales, E. P. Walsh, J. J. Walsh, W. F. Walton.

DIPLOMA IN CHILD HEALTH.—Daphne S. A. Anderson, D. C. Arnott, Katharine M. D. Bailey, C. L. Balf, A. C. Blandy, A. Bogdanovitch, P. T. Bray, Lorna M. Brierley, Marion Brown, F. R. Buckler, A. E. Buckwold, D. J. Conway, N. J. Cook, Pamela J. Coope, Janet E. W. Copland, P. J. N. Cox, W. H. Craike, Rosemary Davies, W. Dickson, J. H. Diggle, Margaret, D. D. Dudley-Brown, Vera S. Emanuel, G. A. Emmerson, Ethel R. Emslie, Linde E. U. Ewald, Ruth M. Fawcett, A. A. H. Gailey, W. H. Galloway, R. E. Glennie, S. G. Hamilton, J. D. L. Hansen, E. W. Hart, Denise O. Henry, Isabella Hood, A. M. Jelliffe, Marion E. Jepson, C. C. Joannides, A. O. John, C. Josephs, Nest Kahan, Gwendoline M. E. Keevil, Elizabeth M. Kingsley Pillers, Kathleen M. Lane, Margaret J. Lezema, H. A. Leggett, K. R. Llewellin, Muriel J. Lowe, P. Macarthur, Alison D. McDonald, N. R. McEvoy, Mary S. McGladdery, Bessie R. Mackenzie, D. McLean, Antionette M. H. MacMahon, W. J. Matheson, J. B. Mehta, E. W. Miles, Mary Milnthorpe, Enid E. Mitchell, Lucille M. Morgan, J. M. Mounsey, Agnes D. D. Murray, P. J. O'Reilly, B. D. Patel, S. H. Patel, Jean W. Paul, J. D. Pickup, E. M. Poulton, P. J. Preston, Ruth Prothero, L. B. Robinson, S. Ruttle, Gwladys M. Sewart, Mary D. H. Sheridan, Katherine V. Smith Helen M. Wagstaffe, H. R. E. Wallis, L. L. R. White, T. K. Whitmore.

DIPLOMA IN PHYSICAL MEDICINE.—J. H. Crosland, C. R. L'E. Orme, J. D. Stewart.

Diplomas of Membership were granted to P. T. Ballantyne, Hans Dasch, and D. A. Richards.

Dr. Allen Oldfather Whipple was admitted as an Honorary Fellow of the College on Oct. 15, and was afterwards entertained to dinner by the members of the Council. The senior vice-president, Sir Heneage Ogilvie, in presenting Dr. Whipple for admission as a Fellow, described him as a great American surgeon, a pioneer in surgical research, a moving spirit in surgical education, a brilliant operator, an inspiring writer, and a well-loved teacher. Sir Heneage

said that Dr. Whipple had so often directed and helped him in the past that he felt particular pleasure in having him for a brief period in his charge. "We honour him, not for his many distinctions, but for the ability that earned those distinctions, not for the many important offices he holds or has held, but for the outstanding qualities of mind and character that have earned him those appointments. Dr. Whipple's name is printed large on every page of surgical advance, and where other surgeons are breaking new ground and treading fearfully, as they are to-day in the surgery of malignant diseases of the pancreas, there they see Allen Whipple before them saying: 'Here I am. This is the way I have gone, and where I have trodden you may follow safely.'"

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College, held on Oct. 16, the following officers were elected for the ensuing year:

President, Mr. James M. Graham. *Vice-President*, Prof. R. W. Johnstone. *Secretary and Treasurer*, Mr. K. Paterson Brown. *Representative on General Medical Council*, Sir Henry Wade. *Convener of Museum Committee*, Mr. W. Quarry Wood. *Librarian*, Dr. Douglas Guthrie.

The following, having passed the requisite examinations, were admitted Fellows:

N. Alders, C. J. B. Anderson, W. G. Birks, S. K. Burcher, A. G. S. Calder, E. A. Chisholm, L. M. David, F. W. T. Davies, A. J. Freese, G. L. Gale, M. P. Goradia, J. B. M. Green, F. M. Hanna, E. L. John, W. G. Kerr, J. E. Laing, W. H. S. Liebenberg, T. Levitt, A. A. MacGibbon, J. M. McInroy, T. B. McMurray, J. M. Matheson, K. N. Mitra, R. F. O'Driscoll, G. V. Osborne, A. P. R. Pinto, E. C. Richardson, G. K. Riddoch, L. J. Roy, A. R. Taylor, D. J. Waterston, A. Young.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A course of lectures on "Recent Advances affecting Obstetrical and Gynaecological Practice" will be given in the College House (58, Queen Anne Street, W.) on Fridays, Nov. 1, 15, and 29, Dec. 13, and Jan. 10, at 5 p.m. Admission is free, by ticket obtainable from the secretary of the College. Applicants should state for which lectures tickets are required. Details will be published in the diary column of the *Supplement* for the appropriate weeks.

Medical Notes in Parliament

HEALTH SERVICE BILL

Committee Stage in the House of Lords

The Committee Stage of the National Health Service Bill was begun in the House of Lords on Oct. 17.

The House agreed to Clause 1 of the Bill without discussion. On Clause 2 Lord MORAN moved to leave out subsections 3 and 4 dealing with the constitution and duties of Standing Advisory Committees and to substitute the following:

(3) The Central Council may, if the Minister so approves, appoint standing advisory committees for the purpose of assisting them in such manner and subject to such conditions, if any, as they may direct, in the exercise of their functions under subsection (1) of this section in regard to all or any matters relating to particular services provided under this Act. Any such standing advisory committee may consist either wholly of members of the Central Council or partly of members of the Central Council and partly of other persons being persons of experience in the particular service or services with which the committee is concerned.

Lord Moran said he was anxious to make the Bill of value and did not wish to be associated with wrecking amendments. He moved this amendment to strengthen the Central Health Services Council. The difference between the Bill as it stood and his amendment was that in the Bill the Minister appointed Standing Committees and they reported directly to him. In his amendment the Council appointed these Standing Committees and they reported through the Council to the Minister. There was a general feeling throughout the profession, and the Negotiating Committee was unanimous, that if the Bill passed as it stood the Standing Committees would do the work and the Central Health Services Council would be robbed of its chief function. At the present time those actively engaged in the practice of their profession played little part in administering the health services and it was hoped that this Central Council would be a means by which those engaged in active practice could take an active part not merely once or twice a year but in everything important concerning health which came before the Minister.

In the House of Commons Mr. Bevan, in trying to define what the Central Health Services Council could do, gave as an example that the Central Council could not advise the Minister on putting up a gynaecological service. Lord Moran took that example and explained that at present there was a dispute in the profession. The British Medical Association felt that every practitioner on the *Register* should have the right to attend midwifery cases. The Royal College of Obstetricians and Gynaecologists felt that only a practitioner who had special training should be allowed to attend confinements. Both felt strongly on this point. Supposing that the dispute had to be referred to the Committee of Gynaecologists the answer would not be in doubt but would not bring conviction to the profession generally. The Central Council should adjudicate between these two sections of the profession. The Minister, when he dealt with matters concerning general practitioners, had got into the habit—the right habit—of consulting the British Medical Association. He had not yet established the equally healthy habit of consulting the bodies which represented consultants and specialists. If the Bill was to be a success Parliament must make the profession feel it was responsible for that success. With the profession behind it there was some chance that the whole scheme would work really well.

The LORD CHANCELLOR (Lord JOWITT) said the Government could not accept the amendment. He himself had to sit on a body which consisted of less than twenty members but which found that the only way to get through its business was to refer a large number of specialist questions to subcommittees with power to act. Before the Minister appointed Standing Committees he had to consult with the Central Health Services Council. The Bill provided that the Standing Committees could report direct to the Minister but should also send a copy of their report to the Central Council so that the Council could make observations on it. That was a better plan than the Council of forty-one, which was bound to be unwieldy. Suppose there was a question relating to dentistry, was it necessary that the Government should wait for the report of the forty-one members, of whom two were registered pharmacists, one a midwife, and two registered nurses?

Lord MORAN said that the amendment only asked that the Central Council should appoint its own subcommittees rather than that committees which were not really subcommittees should be appointed by someone else. In view of what the Lord Chancellor had said he withdrew the amendment.

Lord MUNSTER asked Lord Jowitt to explain the provision in Clause 2 which said that the Minister, after consultation with the Central Council, could refrain from laying the annual report of that Council before Parliament if he was satisfied that it would be contrary to the public interest.

The LORD CHANCELLOR said the report might include matters connected with war or about a promising discovery made with regard to cancer which it would be undesirable in the public interest to release too soon. Apart from rare cases of that sort he did not think that the proviso would have to operate so long as peace remained.

The House then agreed to Clause 2 and Clause 3. On the motion of the LORD CHANCELLOR a drafting amendment was made in Clause 4 (Accommodation Available on Part Payment). In the same Clause the EARL OF MUNSTER moved to insert a proviso that where there was provided in any hospital accommodation in single rooms or small wards such accommodation should not be converted into larger rooms or wards. Lord Jowitt gave an assurance that such rooms would not be converted unless this was found necessary in the interests of the services provided by the hospital as a whole or in the wider interests of the co-ordinated hospital service. Lord MUNSTER withdrew his amendment but said he still feared that on account of the shortage of hospital accommodation Mr. Bevan would be forced to remove the whole of the private accommodation in many hospitals. Clause 4 was agreed to.

Accommodation for Private Patients

On Clause 5, subsection (2) begins: "The Minister may allow any medical practitioner serving on the staff of a hospital providing hospital and specialist services to make arrangements for the treatment of his private patients either at that hospital or at any other hospital."

Lord LLEWELLIN moved to omit from this passage the words "serving on the staff of a hospital providing hospital and specialist services." He said the amendment would allow a doctor to follow his patient into a hospital even though that doctor was not a specialist on the staff of that hospital and would allow a patient to continue under the same doctor. The doctor who suited a patient best was the one who knew that patient's past history and had his confidence.

Lord SALTOUN said this difficulty was found in many hospitals to-day and was often covered by the hospitals making all

medical practitioners within a certain range honorary members of their staff.

Lord Horder said that from the medical angle he gave emphatic support to the amendment. It was greatly in the interest of the patient on personal and on medical grounds that continuity should be preserved.

Lord Listowel said that under the Bill a doctor who remained outside the public service could give institutional as well as domiciliary treatment to his patients. The patient could have an operation in a nursing home from a doctor who remained outside the service. The amendment would allow a specialist or general practitioner who chose to stay outside the public service to use for his private work hospitals provided at the public expense.

Lord Cranborne said the patient had made his contribution to the State scheme and the Opposition felt that when he entered the State hospital he should be limited only to the State treatment. The medical practitioner who was not a member of the State service could not under the Clause as it stood even arrange for his patient to be treated by somebody else at a State hospital. That practitioner was completely outlawed. The position was utterly unjustifiable. He could not believe that the people intended in setting up a State service that there should be this divorce between a physician and his patient. The Opposition favoured a State service but did not believe that there should be a continual whittling down of private practice so that in effect it was really useless.

Lord Addison said the practice of attaching medical practitioners in a district to a hospital was quite common. These men could take their patients in and no question would arise. But a hospital was an organization run by the staff and when medical practitioners outside sent their patients into the hospital they did not follow them themselves. The patients were treated by a member of the staff of the hospital and that was what the Bill proposed. The amendment proposed that for the purpose of private nursing a medical man would send his patient in, follow the patient in and thereby become a member of the staff. Hospitals could not be run on that indiscriminate basis. The practice now in existence was satisfactory.

Lord Swinton said that if, as Lord Addison had argued, there was to be no alteration in the existing position there need be no Clause. The effect of the Clause was to give a special privilege to a particular class of doctor. Lord Llewellin asked whether the words "serving on the staff" which were used in the subsection meant a full-time doctor on the staff. Lord Addison said they did not. Lord Llewellin said he felt there might be some misunderstanding and his friends would like to reconsider the matter. He withdrew his amendment and Clause 5 as previously amended was agreed to.

Transfer of Hospitals to the Minister

Lord Listowel said Clause 6 as drafted was too wide. It would transfer to the Minister property belonging to local authorities which was not part of a hospital. It would, for instance, transfer to him a site which had been bought for the purpose of building a hospital but had not been so used. He proposed an amendment to alter the wording of subsection (2) in order to afford protection to the local authorities. The House accepted the amendment.

Lord Iddesleigh moved to provide that on the transfer to the Minister of a voluntary hospital having associations which linked it with a particular religious organization regard should be had in the general administration and in making appointments on the management committee and the staff to the preservation of that hospital's character and associations. He instanced The Retreat (the mental home provided by the Society of Friends), the Jewish Hospitals, and the numerous Roman Catholic hospitals.

The Lord Chancellor said Mr. Bevan had already given an undertaking broadly on those lines. The Minister could not sacrifice medical considerations, but so far as practicable it was right that the Ministry should maintain and uphold the denominational character of these hospitals. He would look into the matter before the Report Stage and see how far he could go to meet Lord Iddesleigh

The amendment was withdrawn and the House agreed to Clause 6.

On Clause 7 Lord Maugham moved to insert at the end of subsection (4) a proviso that in the case of any endowments for which a special application or appropriation had been directed or declared by the donor, the Minister should, so far as practicable, secure that the directions of the donor should not be prejudiced.

Lord Reading, Lord Llewellin, Lord Saltoun, and the Duke of Montrose supported the amendment.

The Lord Chancellor said that whereas with regard to the teaching hospitals no redistribution of funds was contemplated it was of the essence of the National Health Service Scheme that there should be a redistribution of the funds of the voluntary hospitals. The Chancellor of the Exchequer had been persuaded to agree that the endowments of voluntary hospitals should remain for teaching purposes so that the hospitals would have a cushion between themselves and the rigour of Treasury control, but there were also the municipal hospitals who had no endowments and some voluntary hospitals which were inadequately endowed. It therefore seemed right to the Government that there should be a redistribution of endowments of voluntary hospitals so that all the hospitals which were going to form part of a common service should be able to share in the proceeds. It was probable that the capital value of the endowments was about £50,000,000, but that contained part of the endowments of the teaching hospitals.

Lord Llewellin said the object of the amendment was to ensure that hospitals, or parts of hospitals, given as war memorials were continued. Lord Maugham thought that the action contemplated by the Government was a breach of trust. Lord Samuel did not think that the purposes of ancient endowments would be satisfied if the old voluntary hospitals were continued with comforts and amenities while the municipal hospitals were bare and barren of additional comforts. What the donors desired was that the sick should be well cared for and happy.

Lord Londonderry said he understood that if a hospital was well endowed and could produce an income every year the Exchequer would provide a lesser sum for the benefit of that hospital than if the circumstances were otherwise.

The Lord Chancellor replied that that was not so. He said he could not weaken on this question. If money was left for the Reigate Hospital the intention of the Government was that this money should be taken, put into the pool, and distributed among other hospitals. If there were some special case such as that of a gift which involved the maintenance of a garden he would consider whether he could devise some words to meet it provided these words were confined to special cases.

The amendment was withdrawn and Lord Llewellin moved to add after subsection (4) a proviso dealing with the interim period before the appointed day. Those who in the past had done good work collecting money for hospitals still wished to collect sums for such things as additional comforts but feared that if they did so the money would go into the Endowment Fund. His amendment was that in the interim period a little fund could be built up.

The Lord Chancellor said he felt sympathy about this matter. It was unlikely that between the passing of the Bill and the appointed day charitably minded people would leave money to the hospitals if they knew that on the appointed day it would be taken into a fund and pooled. He would see whether before the Report Stage he could devise some appropriate form of words to meet this important point.

The amendment was withdrawn and the Committee agreed to drafting amendments proposed by Lord Listowel. Clause 7 as amended was then agreed to and Clause 8 was adopted without amendment.

The House then adjourned.

Functions of Management Committees

The Committee stage of the Bill was resumed on Oct. 21.

On Clause 12 Lord Luke moved an amendment to readjust the functions as between the regional boards and the hospital management committees. He said that the management committees or groups of hospitals should have powers from the regional boards similar to those enjoyed from the Minister by the teaching hospitals. To take the appointment of hospital staff away from the management committees would bring about a divided loyalty and would introduce the factor of remote control. If the Minister wanted responsible people to be members of management committees he should give them suitable responsibilities.

The Lord Chancellor agreed that the success of the scheme would depend almost entirely upon a very wide measure of delegation. The real issue was on the question of machinery. It would be prescribed by regulation that the management committees should do all things in regard to the day-to-day running of hospitals and incurring expense on behalf of the regional boards, but questions of major policy would be for the boards.

Lord Llewellin said that this was doing it the wrong way. In the Bill as drafted the hospital management committees were left with no powers, and he wanted it to be seen in the Bill that there was a real job of work to be done by these committees, otherwise people would not be prepared to serve on them. Viscount Simon said it should be possible to make it plain in the actual language of the Bill—and not leave it to regulations after the Bill had been passed—that the committees were going to have a job left to them.

The LORD CHANCELLOR said that it would be possible to do what the amendment suggested, but quite deliberately it was not being done. It was provided that the hospital management committees might exercise on behalf of the regional hospital boards certain functions which were to be prescribed. He wanted the boards to leave a very wide discretion to the hospital management committees, and he believed that that was the best way of securing a co-ordinated system.

Viscount CRANBORNE asked that the Government should give the matter a little more thought. The LORD CHANCELLOR undertook to consider the matter further and the amendment was withdrawn.

Teaching and Research Facilities

Lord MORAN moved an amendment the main purpose of which was to ensure the setting up of medical staff committees in the hospitals. He said that in the voluntary hospitals there were such committees who kept the hospitals up to date. The matter was important because it was the very root of the efficiency of the administration of the voluntary hospitals.

Lord HORDER said he would be satisfied with an assurance that it would be within the power of the hospital management committees to encourage the setting up of medical staff committees.

The LORD CHANCELLOR said that he would desire to encourage the setting up of medical staff committees rather than providing that the hospital management committees should arrange for them to be set up. The initiative of the medical staffs on this matter would not only be welcomed but it would be regarded as lamentable if they did not take the initiative. He was reluctant, however, to put a provision in the Bill, and preferred to leave it to regulations. The amendment was, by leave, withdrawn.

Lord MORAN moved a further amendment to secure that the board of governors of every teaching hospital should provide those facilities for medical teaching and research required by the university or medical school with whom the teaching hospital was associated. He feared that in time the board of management might feel that there was extravagance and that more was being done than the comfort of the patient warranted, with a consequent weakening of teaching and research in the hospital. Lord HORDER and Lord CHERWELL supported the amendment.

The LORD CHANCELLOR said that it was fundamental that there should be facilities for teaching and research, but he thought it was going a little too far to provide whatever facilities the universities might require. He undertook to see if some suitable words could be drafted to meet the point. The amendment was withdrawn.

Legal Status of Management Committees

On Clause 13 Lord LLEWELLIN moved an amendment to provide that hospital management committees might sue or be sued, and have their own right to make contracts for the daily services of the hospital. He said that if they had to refer back to the regional boards they would become mere ciphers and there would be a complete lack of decentralization.

The LORD CHANCELLOR said that in certain of their actions the management committees could sue or be sued in the ordinary way. It was only when they were acting on behalf of the regional boards that they could not. In a co-ordinated scheme there must be a chain of authority involving the Minister at the top, the regional board, and the management committee acting on behalf of the board. It did not mean that the management committees were mere ciphers any more than estate agents were.

Viscount CRANBORNE said that the logical conclusion to draw from the Lord Chancellor's argument was that the only really responsible person was the Minister, and yet certain responsibilities were conferred on the regional boards. In that case, why not confer responsibilities on the management committees?

Lord INMAN said that he had received numerous letters from people who were leaving voluntary hospital work because they were losing their responsibilities, and he hoped that a compromise might be reached.

The amendment was carried against the Government by 59 votes to 17—Opposition majority, 42.

Appointment of Officers

On Clause 14 Lord LUKE moved an amendment which would have the effect of enabling appointments of staff to be in the hands of hospital management committees instead of in those of the regional hospital boards, as the Bill proposed.

The EARL OF LISTOWEL said that in fact the whole of the medical, nursing, and domestic staffs, except for a few specialists at the top, would be chosen, appointed, and if need be dismissed by the hospital management committees. Lord LLEWELLIN said that it did not appear from the terms of the Bill that the Minister would be able to make regulations to that effect, since the staffs who looked after the hospitals would be officers of the regional boards.

The LORD CHANCELLOR said he could not state what the regulation would be, but the broad line was that certain matters would be within the province of the committees, including the appointment and dismissal of staff—with the exception of the senior staffs. He did not think there would be anything in the nature of an appeal to the regional hospital board in the case of a member of the staff being dismissed. Viscount CRANBORNE said that the Opposition wanted the hospital management committees to be able to appoint and dismiss staffs, and they insisted that that should be put in the Bill.

Viscount ADDISON said that amendments such as this would torpedo the possibility of a regional scheme. Lord LLEWELLIN said that they had been assured that these officers would, when the regulations came out, be officers of the regional board, but in fact they would be subject to dismissal by the management committee. It should be shown in the Bill to whom these officers really belonged. Lord INMAN said there were advantages in the Government's scheme. It would be convenient, for instance, to have accountants spread throughout a region and not attached to one hospital. Nurses, too, liked to move from one hospital to another, and did not want to be tied to one particular hospital. Viscount CRANBORNE suggested that there might be some differentiation between types of officers. As the word was used it covered both a hall-porter and a lung specialist, and whereas there would be advantages in a specialist ranging throughout an area that advantage would not apply to a porter. The amendment was negatived.

Maternity and Child Welfare

On Clause 19 Lord BALFOUR OF BURLEIGH moved an amendment to give power to the L.C.C. to delegate maternity and child welfare and ancillary services to the City and the metropolitan boroughs. He said that in the autumn of 1945 this arrangement was unanimously recommended at a meeting of the L.C.C., and no one had yet explained why they had changed their minds. Rumour had it that Lord Latham had said it should be so and it was so. In that case Lord Latham was a dictator, and this mixture of Hitlerism and bumbledom should be swept from the Bill. The MARQUESS OF ABERDEEN and Lord JESSEL supported the amendment.

The LORD CHANCELLOR said that at the time the L.C.C. passed the resolution they were going to keep their hospitals, and since they did not want too much on their plate they were prepared to delegate these services. But now that they were losing their hospitals they had the time and the ability to conduct these other services. The functions that remained with the L.C.C. were the provision of health centres, at which most of the functions of maternity and child welfare would be carried out, domiciliary midwifery, the ambulance service, and the care and after-care of the sick. The Government thought it desirable to concentrate responsibility for the health services on the local authorities in any given area in one authority. Would it be wise to place responsibility for maternity and child welfare in the hands of the metropolitan boroughs while keeping responsibility for domiciliary midwifery in the county council? Was it wise to leave provision for health centres for general medical and dental services with the L.C.C. while leaving maternity clinics and infant welfare centres with the borough councils? The amendment would increase administrative friction and difficulty, and produce a loss of efficiency and co-ordination. The amendment would be a retrograde step. By all means let the county council develop on a regional basis and take in representatives of the borough councils, but it would not be wise or sensible administration to have one body dealing with the under-fives and another with the over-fives.

The EARL OF MUNSTER, the MARQUESS OF READING, and Lord LLEWELLIN supported the amendment, which was carried—again against the Government—by 35 votes to 15—Opposition majority, 20.

Bread and Chalk

Answering Sir ERNEST GRAHAM-LITTLE on Oct. 8, Mr. STRACHEY said the amount of creta preparata which was added to flour had been decided after consultation with the scientific and medical advisers of the Ministry of Food and after recommendations had been made by the Medical Research Council and considered by the Standing Committee on Medical and Nutritional Problems. These bodies included leading physicians. It was not proposed to add to their numbers. Mr. Strachey thought it was preferable to continue to use the accurate term "creta preparata" for the substance, conforming to the specification of the *British Pharmacopoeia*, which was added to flour. Sir. E. Graham-Little suggested the use,

in circulars and Parliamentary answers, of the word "chalk." Mr. Strachey replied that chalk, as popularly understood, was a substance of variable composition which might contain as little as 85% or as much as 99% of calcium carbonate.

On Oct. 9, in a further reply to Sir E. Graham-Little, Mr. Strachey said that although the extraction rate of flour was being lowered to 85% it was inadvisable to lower the rate of addition of creta preparata below the original recommendation. Alternative sources of calcium in the diet were short at present.

Answering Sir Wm. Darling on Oct. 8, Mr. Strachey said he was anxious to reduce the flour extraction rate to 80% as soon as practicable. In national bread, bakers were allowed to use, beside national flour, water, salt, and yeast, any of the following substances: white flour, oils and fats, improvers in the nature of yeast food, any acid or acidic substances for regulating the acidity of the dough, potato and potato flour, barm.

Long-term View on Loans

On Oct. 8 Sir E. Graham-Little asked what provision was made for the resettlement in practice of medical practitioners whose houses were mortgaged to insurance companies at the time of their call-up to the Forces and who were faced with foreclosure by the insurance companies and found themselves, on demobilization, homeless and without means to buy another practice.

Mr. Bevan replied that the arrangements made to assist the resettlement of medical officers discharged from the Forces did not include the provision of money for the purchase of a practice which could normally be obtained from the financial agencies with whom the medical profession were accustomed to deal. In the particular case to which Sir Ernest had drawn attention there might be hardship due to special difficulty in obtaining a loan in this way, but if the Health Service Bill was approved by Parliament the purchase of a practice would, when the Service came into force, no longer be necessary.

Surgical Boots

On Oct. 10 Mr. Prescott asked whether the Minister of Pensions was aware of the delay still experienced in the repair and provision of surgical boots for disabled ex-Service men.

Mr. Paling said production was still somewhat below demand in this small specialized industry, but through the help of the Minister of Supply his Department's principal contractors would shortly move into a modern and larger factory. When the new factory was in full operation output would meet demand.

Inter-Departmental Committee on Dentistry

Mr. Baird asked on Oct. 11 what action was proposed to give effect to the final report of the Inter-Departmental Committee on Dentistry.

Mr. Bevan said the recommendations of the committee concerned measures to secure an adequate number of dentists for the population, legislation dealing with the practice of dentistry and the government of the dental profession, and matters concerning dental research. Many of the proposals were in the first place subjects for educational authorities. The Government had invited universities, dental schools, and teaching hospitals to consider the Report, and would consider introducing as soon as practicable legislation relating to those recommendations which dealt with the practice of dentistry and the government of the dental profession. The Government appreciated the importance of dental care as part of a comprehensive health service, and had already decided to provide the University Grants Committee with an additional sum of £100,000 for distribution during 1946–7 to assist dental schools in meeting increased recurrent expenditure resulting from an increased intake of dental students. They agreed that grants towards capital expenditure by dental schools for the same purpose should be made through the Medical Grants Committee. The Medical Research Council had accepted a recommendation that to assist them in their work in this field they should reconstitute their Dental Research Committee. The Council would be able to finance this work from the general grant-in-aid which they received from the Exchequer.

Pasteurization

Mr. Tom Williams, replying to Lieut.-Col. Sharp on Oct. 14, stated that where tubercle bacilli are found in a bulk sample of milk taken in a consuming area, the offending cow, if still in the herd, is usually detected very quickly, but in a small minority of cases there may be some unavoidable delay, due to the need for biological tests. The point raised in the latter part of the Question, whether he would exercise his powers under the Food and Drugs (Adulteration) Act, 1938, and order immediate pasteurization of the milk from a particular herd, was under consideration by the Departments concerned in connexion with the revision of the Milk and Dairies Regulations.

Medical Research Council

On Oct. 15 Major Vernon asked the numbers of staff employed by the Medical Research Council and the salaries paid in the categories. Mr. Herbert Morrison furnished this table:

Staff Employed by M.R.C.

	Numbers	Salaries £
Administrative officers	10	590–2,750
Scientific staff, including qualified assistants	204	300–2,500
Other staff paid monthly	171	250– 750
Established staff paid weekly	63	Under 250
Temporary staff paid weekly (mainly under age 21)	96	Under 250

In addition, 15 scientific officers and 8 temporary staff paid weekly are employed on a part-time basis, with salaries *pro rata* within the ranges given above.

Sweets and Teeth

Mr. Peter Freeman on Oct. 15 drew attention to experiments on 45 children performed by Dr. J. D. King, of the Medical Research Council, over periods of six months and two years. He said such experiments were calculated, in the opinion of medical authorities at the time, to injure the teeth of the children. He asked why children from an orphanage were chosen.

Mr. Herbert Morrison answered that the experiment involved giving a small extra ration of sweets to a number of children whose dental condition was under observation. The children were kept under constant supervision throughout to ensure that they suffered no ill effects from the experiment, which would have been stopped at once if there seemed to be any danger of this. In fact, as had been expected, there were no ill-effects and the children thoroughly enjoyed the experiment. It was necessary to study children in institutions owing to the need for an adequate number of subjects living under identical conditions on a known diet.

Priority Milk

Answering Sir Henry Morris-Jones on Oct. 16, Dr. Summerskill dealt with milk supplies. She said she had reviewed the allocation of milk between priority and non-priority consumers after consultation with the standing committee on medical and nutritional problems. She hoped it would not be necessary to reduce the supply to non-priority adults below two pints per week during the winter. She would increase it above that figure as soon as the output rose in the spring. She was not prepared to reduce the quantities supplied to mothers and children below the present amounts, which her medical advisers recommended as essential. She could not make special arrangements in the case of the elderly or people living alone.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increased incidence was recorded for measles 320, scarlet fever 78, and diphtheria 34; cases of whooping-cough declined by 140.

Changes in the local returns for scarlet fever were barely appreciable except for increases in London 26, Lancashire 26, and Middlesex 20. The largest increases in notification of diphtheria were Lancashire 12 and Glamorganshire 11. A further decline in whooping-cough was general throughout the country and no large variations in incidence were reported. In Devonshire the notifications of measles fell by 107, but in all other areas a rise occurred, notably in Lancashire 121. The largest return for dysentery was Warwickshire, Birmingham C.B. 7.

In *Scotland* infectious diseases generally were more prevalent and rises included scarlet fever 50, acute primary pneumonia 47, measles 38, and diphtheria 26. The only exception to the general trend was a fall of 9 in the notifications of cerebro-spinal fever. The incidence of this disease was at the lowest level for over a year. The increase in diphtheria was mainly contributed by the Western Area, where the number of cases

rose from 57 to 86. The rise in the incidence of scarlet fever was fairly general; the largest increase was 24 in Glasgow.

In *Eire* a general increase was recorded for diphtheria 18 and measles 23. Although the notifications of diarrhoea and enteritis increased by 1 for the whole country, a fall of 9 was recorded in Dublin C.B.

Typhoid and Paratyphoid Outbreaks

Up to Oct. 21 there were 47 cases of typhoid in Armagh Fever Hospital and 12 cases in other fever hospitals. The diagnosis has yet to be confirmed bacteriologically in only two of the Armagh cases. The source of the infection—which is now under control—was a milk supplier.

At Sheffield there has been a mild outbreak of paratyphoid fever involving so far 24 cases.

Quarterly Returns for Northern Ireland

During the June quarter the births were equivalent to a rate of 23.8 per 1,000, which is 1.0 above the corresponding quarter of 1945 but 0.6 below the average for the second quarters of the five years 1941–5. The infant mortality was 55 per 1,000 registered births compared with an average rate of 69 for the second quarters of the five preceding years. The deaths of only 6 women were attributed to diseases and accidents of pregnancy and childbirth, representing a rate of 0.8 per 1,000 births, which is 2.7 below the average of the corresponding quarters of 1941–5. The general death-rate was 12.1 per 1,000 and was 1.6 below the five years' average. Diarrhoea and enteritis in children under 2 was responsible for 58 deaths. There were 217 deaths due to pulmonary tuberculosis and 79 due to other forms of tuberculosis. These were 22 and 6, respectively, below the averages of the June quarters for the five preceding years.

Week Ending October 12

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,106, whooping-cough 1,362, diphtheria 269, measles 2,005, acute pneumonia 351, cerebrospinal fever 37, dysentery 44, acute poliomyelitis 22, paratyphoid 6, typhoid 3.

Ten-year Summary

The Minister of Health furnished on Oct. 16 the following table setting out the incidence of certain infectious diseases:

England and Wales

	Diphtheria		Scarlet Fever	
	Cases Notified	Deaths	Cases Notified	Deaths
1936	57,795	3,003	104,862	440
1937	61,341	2,898	95,735	305
1938	65,008	2,861	99,278	311
1939	47,343	2,133	78,101	181
1940	46,280	2,480	65,302	154
1941	50,804	2,641	59,433	133
1942	41,404	1,827	85,084	104
1943	34,662	1,371	116,034	134
1944*	23,199	934	92,671	107
1945*	18,596	722	73,687	84

	Measles		Whooping-cough		Chickenpox†
	Cases Notified	Deaths	Cases Notified	Deaths	Deaths
1936 ..	Not notifiable	2,593	Not notifiable	1,918	23
1937 ..	,,	980	,,	1,600	19
1938 ..	,,	1,524	,,	1,052	18
1939 ..	,,	303	,,	1,229	18
1940 ..	409,521	857	53,607	678	10
1941 ..	409,715	1,145	173,330	2,383	28
1942 ..	286,341	458	66,016	799	16
1943 ..	376,104	773	96,136	1,114	19
1944* ..	158,479	243	94,044	1,054	24
1945* ..	446,796	729	62,691	689	9

* Notifications for years 1944 and 1945 include corrections of diagnoses made at infectious diseases hospitals; material for an exact comparison with the years 1936–43 is not available.

† Chickenpox is not a notifiable disease.

Tuberculosis in Vienna

New cases of tuberculosis notified in Vienna during the last six months were: 491 new cases in April, 481 in May, 586 in June, 369 in July, 382 in August, and 335 in September. The number of beds at present available for cases of tuberculosis in Vienna is 2,500.

No. 40

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 5.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946					1945 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	32	2	10	2	—	38	1	23	—	1
Deaths		—	—				—	—		
Diphtheria	319	22	105	44	10	479	33	166	105	11
Deaths	5	—	—	2	—	12	1	—	1	—
Dysentery	63	5	35	1	—	207	56	108	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	—	—	—	—	—
Deaths		—					1			
Erysipelas			39	7	3			43	10	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				58					62	
Deaths	39	3	8	16	1	47	7	18	15	5
Measles*	1,781	91	117	52	8	367	33	68	43	1
Deaths	2	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum	80	8	11	—	—	79	4	13	—	—
Deaths										
Paratyphoid fever	20	—	2 (B)	—	1 (B)	11	1	2 (B)	—	—
Deaths	2	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	411	21	2	—	1	377	25	3	2	4
Deaths (from influenza)†	7	1	1	—	—	8	—	4	—	—
Pneumonia, primary			165	16				121	13	
Deaths		21		5	7		17		4	5
Polio-encephalitis, acute	2	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	23	—	1	4	1	29	3	—	3	1
Deaths		—					—			
Puerperal fever		2	18		—		3	17		—
Deaths										
Puerperal pyrexia‡	163	9	20	4	—	155	11	22	—	2
Deaths		1					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,079	91	218	36	32	1,683	135	318	27	45
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	3	2	6	3	15	5	4	2	1
Deaths	—	—	1	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,311	90	96	31	22	909	55	30	60	7
Deaths	12	3	1	—	—	4	1	—	—	—
Deaths (0–1 year)	385	58	55	32	9	291	36	56	33	19
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,914	604	538	188	103	3,947	564	518	171	113
Annual death rate (per 1,000 persons living)			11·8	12·0				11·8	11·0	
Live births	9,570	1482	1114	431	295	6,831	870	914	449	265
Annual rate per 1,000 persons living			22·4	27·6				18·3	29·0	
Stillbirths	253	33	33			200	11	29		
Rate per 1,000 total births (including stillborn)			29					31		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

The 20th annual Lloyd Roberts' Lecture will be delivered in the Physiology Theatre of Manchester University by Prof. Michael Polanyi, F.R.S., on Tuesday, Nov. 19, at 4.15 p.m. Subject: "The Foundations of Academic Freedom."

The following programme has been arranged for the tenth anniversary celebrations of the founding of the Empire Rheumatism Council. Friday, Oct. 25, 7.15 p.m., Heberden Society Dinner to welcome official Swedish delegates to the celebrations, at Euston Hotel, with Dr. C. W. Buckley in the chair. Saturday, Oct. 26, 11 a.m., Prof. J. A. Höjer will deliver an address on "The Organization of Treatment and Research into Rheumatism in Sweden," at the Medical Society of London, 11, Chandos Street, Cavendish Square, W., with Lord Horder in the chair, supported by His Excellency the Swedish Minister. Monday, Oct. 28, 4 p.m., Reception at the Hall of the Society of Apothecaries, Blackfriars Lane, E.C., guests will be received by Mr. Aneurin Bevan, Minister of Health, and Lord Horder, chairman of the Council. The guests of honour are the Swedish Minister, with Prof. J. A. Höjer and Dr. B. Strandell of the Royal Swedish Health Department, and Dr. Loring T. Swaim, of the American Rheumatism Association. There will be a message from H.R.H. the Duke of Gloucester. Tuesday, Oct. 29, 1.15 p.m., Lunch, to be given by H.M. Government, at Savoy Hotel, Strand, W.C., with Mr. Aneurin Bevan in the chair; 5.30 p.m., Reception by the British Council at 74, Brook Street, W.

A series of lectures will be given at the Royal Institute of Public Health and Hygiene, 28, Portland Place, W., on Wednesdays, Oct. 30 to Dec. 18, at 3.30 p.m. The lecturers and their subjects are: Dr. W. H. Bradley, "Methods adopted in the Detection of 'The Carrier'"; Dr. Brian Russell, "Some Possibilities in the Prevention of Disorders of the Skin"; Miss Barbara M. Duncum, D.Phil., "The Popular History of Anaesthesia"; Mr. C. W. A. Kimbell, F.R.C.S., "Medical Aspects of Life in the Prisoner of War Camp"; Miss Barbara Low, B.A., "Juvenile Delinquency"; Prof. Arnold Sorsby, F.R.C.S., "Blindness in Childhood—Past Achievements and Present Problems"; Sir Allen Daley, M.D., "The Public Health Services of London during the Past Hundred Years"; Dr. C. H. C. Toussaint, "Tuberculosis—The Objective and Its Approach." Seats are reserved for Fellows, Members, and Associates of the Institute, but accommodation is provided for others who are interested in health problems. The Museum of Hygiene may be viewed before or after the lectures.

At a meeting of the London Association of the Medical Women's Federation in the Hastings Hall of B.M.A. House on Tuesday, Nov. 5, at 8.30 p.m., Lady Florey will speak on "The Chemotherapy of Infected Wounds." Coffee at 8.15 p.m. in the Members' Common Room. The next meeting will be held on Friday, Dec. 6, when Dr. W. Ritchie Russell will speak on "Rehabilitation after Head Injuries."

The third Medical Research Society lecture will be given by Dr. W. J. Kolff on "The Artificial Kidney" at the University College Hospital Medical School, Gower Street, W.C., on Thursday, Nov. 7, at 5 p.m. Those professionally interested are invited to attend.

At a meeting of the Tuberculosis Association to be held at 26, Portland Place, W., on Friday, Nov. 15, at 3.15 p.m., Dr. J. F. Brailsford will read a paper on "The Technique and Standardization of Radiographs of the Chest," and after tea Dr. G. S. Todd and Dr. David Anderson will open a discussion on "Chest Diseases and Flying."

A meeting of those interested in a proposed Association of Plastic Surgeons will be held at the Royal College of Surgeons, Lincoln's Inn Fields, on Wednesday, Nov. 20, at 5 p.m. The President of the Royal College of Surgeons welcomes the formation of such an association and suggests that it should fall into line with other similar associations already affiliated to the Royal College of Surgeons.

Aberdeen University Court has appointed Dr. Alexander H. Macklin to the new post of medical officer with charge of the students' health services. He is at present physician in charge of the electrocardiographic department of Dundee Royal Infirmary.

The Home Office announces amending Orders made by the Secretary of State which came into operation on Oct. 15, bringing certain additional substances within the scope of the Poisons List and Rules. To Part I of the Poisons List there are added dihydrodesoxymorphine, and also pethidine and its salts. To Part II is added zinc phosphide. Dihydrodesoxymorphine, pethidine and its salts, and zinc phosphide are added to the First Schedule; but "articles containing zinc phosphide and prepared for the destruction of rats and mice" are exempted from First Schedule requirements by an amendment to Rule 10.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proof. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Articulate, Westcent, London.*

MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Androgens for Enlarged Prostate

Q.—*Since androgens are said to activate prostatic epithelium, what is the rationale of treatment of senile enlargement of the prostate with androgens?*

A.—The theoretical basis for the use of androgens for enlarged prostate is the fact that sexual potency wanes in some men in the sixth and seventh decades, and sometimes earlier. There is also some evidence, based on biological assay of androgens in the urine, that there is decreased testicular secretion in these later phases of life when the prostate gland enlarges. However, it is equally true that androgens do activate prostatic epithelium. The committee set up by the Medical Research Council before the war came to the conclusion that no objective evidence was forthcoming in favour of the value of testosterone in senile enlargement of the prostate. On the other hand, most clinicians had the impression that the symptoms of the condition were subjectively improved.

There is no definite knowledge as to the endocrine aetiology of senile enlargement of the prostate, but the theory has been advanced that a relative preponderance of oestrogens in old age due to a deficiency of testosterone, is responsible. Experimentally, oestrogens will produce fibromuscular hypertrophy of the prostatic gland. Carcinoma of the prostate is treated by oestrogens on the theory that they produce a physiological castration, and possibly have a direct favourable action on the cancer. The subject as a whole, therefore, is seen to be quite involved.

Tender Granulation Tissue

Q.—*If the skin is removed from any part of the body the underlying tissue, except the actual nerves, is at first insensitive to pain. Later, when covered with granulation tissue, the exposed tissue becomes exquisitely tender. Why?*

A.—Sensitivity in granulation tissue is of two types. The first is generalized over the whole surface and is evoked by, say, the removal of a dressing. It is an indefinite pain, and is probably due to tension transmitted through the ingrowing vessels to their deeper sources. It may therefore be sympathetic in origin. The second type consists of acutely sensitive areas which are clearly defined and usually small. These are presumably sites of nerve-budding and are often found near the edges of the defect, where it is probable that a few exposed end organs persist.

Undescended Testicles

Q.—*What advice should be given to the parents of a boy aged 10, healthy, and with no sign of endocrine defect, in whom the testicles are not in the scrotum and cannot be detected in the inguinal canal?*

A.—If the testicles are still on their normal route of descent they will probably come down at puberty. If they have left their normal course they will not descend spontaneously and surgery will ultimately be needed. The best advice is that no action should be taken until the age of 12, or until signs of puberty are first seen if this should be earlier. The boy should then be given a course of intramuscular injections of chorionic gonadotrophin (500 international units twice weekly). If the testicles have not descended in three months on such treatment operation is advisable. Treatment will not in this case be

wasted, as it is now generally admitted that the increase in size and blood supply of the imprisoned testicles improves their chance of ultimate survival in the scrotum.

I do not know the proportion of cases in which spontaneous descent occurs at puberty, but it is certainly high. In such cases endocrine treatment may be regarded as a test of their capacity to descend. It is incorrect to state, as some do, that endocrine treatment is no more than a test and that all cases which can be cured by these means would recover spontaneously.

D.D.T. Paint

Q.—*Can D.D.T. be mixed effectively with paint or distemper?*

A.—D.D.T. can be incorporated in various ways in whitewash, distemper, and paint. However, where "drying" oils are present (as in paint or washable distemper) the insecticidal action of D.D.T. is much reduced, presumably because it is then much less available to poison insects. Therefore they can, without harm, remain much longer in contact with D.D.T.–paint or D.D.T.–distemper than with the residue of an ordinary spray deposit. There seems to be no advantage whatever in incorporating D.D.T. into distemper or paint, since it does not seem to be any more persistent in this form and it is certainly much less efficient.

Excessive Coffee-drinking

Q.—*Can you refer me to some authoritative study of the ill effects of excessive coffee-drinking?*

A.—The most authoritative discussion of coffee-drinking is published in the *Archiv für experimentelle Pathologie und Pharmakologie* (1938, **190**, 118). The discussion is opened by no less an authority than Straub, and he is followed by Eichler, Stieve, Stepp, and Flury. There is a recent paper by Roth, Ivy, and Atkinson in the *Journal of the American Medical Association* (1944, **126**, 814), dealing with caffeine and peptic ulcer, in which evidence is presented that 70% of ulcer patients found that coffee and tea increased their symptoms.

Making Soft Toys Aseptic

Q.—*What is the best method for disinfecting unbleached wool and fur fabric used in the manufacture of soft toys? Would the application of antiseptic powder be satisfactory?*

A.—The best way to treat unbleached wool, fur fabric, or toys made of these materials, in order to render them aseptic, would be to sterilize with steam, in the same way as surgical material and instruments are sterilized. The introduction of antiseptic powder would not be nearly so satisfactory. All such powders are irritant and might produce dermatitis in susceptible individuals; and it would certainly be undesirable to give children toys impregnated with materials of this kind.

High Altitudes and Duodenal Ulcer

Q.—*A man in his middle fifties has had three attacks of duodenal ulceration, with two severe haematemeses. He now proposes to live at an altitude of about 8,000 ft. (2,400 m.), practically on the Equator. What effect, if any, will this have on the coagulation of the blood? Is it true that a great many people living under these conditions become "nervy" and "jumpy"? Finally, are such conditions suitable for children?*

A.—Duodenal ulcer is a chronic complaint always liable to relapse unless continued care is taken. Although this patient is said to have had only "three attacks of duodenal ulceration," the fact that he has had two dangerous haematemeses suggests that the prognosis is unsatisfactory. Unless this patient can be in a position to look after himself and his diet in the best possible way further haemorrhage can be expected. He should bear in mind that in the last war he would have been considered unfit for service anywhere over-seas.

Questions about the effect of altitude upon the coagulation of the blood (which will be unaltered) are of little moment compared with those about the possibilities for diet in his new surroundings. Even more important are the medical and hospital facilities provided. The patient may well become "jumpy" and "nervy" if he is living some hundreds of miles away from the nearest hospital and blood-transfusion apparatus. Extra oxygen is not usually required below 10,000 ft. (3,000 m.), but 8,000 ft. is not far below this and considerable constitutional upsets are to be expected. These will be noticed on arrival, before the individual has become acclimatized, and again after a long stay at that height. Lethargy, jumpiness, and flatulent dyspepsia may be anticipated. Conditions at 8,000 ft. cannot be recommended for children.

Erysipeloid

Q.—*What is the most satisfactory form of treatment for a very troublesome erysipeloid condition common in butchers and fishmongers, known as "fish-handlers' disease"?*

A.—Erysipeloid, an infection due to *Erysipelothrix rhusiopathiae*, responds dramatically to intramuscular penicillin within a matter of 48 hours. I have seen good response to as small a dose as 100,000 units.

Treatment of Ophthalmia Neonatorum

Q.—*What is the recognized modern treatment for ophthalmia neonatorum?*

A.—The classical methods of treatment consisted essentially of ceaselessly washing away all the pus from the infected eye to prevent it from damaging the cornea, and waiting for spontaneous healing, which generally took some weeks. In contrast, the modern methods of treatment deal with the infection primarily. Two alternative procedures are available.

(1) *Sulphonamide Therapy.*—Employed locally the sulphonamides are useless in ophthalmia neonatorum, as they are inactivated by pus and breakdown products of the tissues: given by mouth they are highly effective. When the baby is first seen a swab of the pus is taken both for a smear preparation and for a culture. The eyes are then irrigated with bland lotion, such as half-normal saline solution at room temperature: 1% atropine sulphate drops and drops of medicinal paraffin are instilled as a routine measure, and half a tablet of sulphamezathine (0.25 g.) crushed into powder is given by mouth in a teaspoonful of water or milk. Sulphamezathine administration is continued in doses of 0.125 g. every four hours, day and night, until 48 hours after a clinical cure is obtained. Local treatment consists in three-hourly irrigation with a saline solution during the first day in cases with profuse discharge; as a rule there is no need for further irrigation on the subsequent days. After irrigation medicinal paraffin is instilled to prevent the lids sticking together. Atropine is instilled three times daily in cases with corneal haze or ulceration.

With this treatment swelling of the lids generally subsides within 12 hours after admission; purulent discharge disappears within 24 hours, so that a threatening purulent ophthalmia becomes a simple conjunctivitis giving no anxiety. The eyes are either dry or very nearly so within 72 hours. Some 40% of all affected babies show complete clinical cure within three days, and 90% within eight days. Resistant cases are only relative failures with a somewhat prolonged course which, however, does not give rise to anxiety, as there is conjunctivitis rather than purulent ophthalmia. Isolated cases of complete resistance to sulphonamides have, however, been observed. Babies tolerate oral sulphonamides well. Nothing is gained by using doses smaller than those indicated, and it is important to continue the treatment for 48 hours after clinical cure, as too early suspension may lead to a relapse.

(2) *Penicillin Therapy.*—Unlike the sulphonamides, penicillin remains effective in the presence of pus. It can therefore be used as a local agent, and has one other advantage in that cure is even more rapid and dramatic. For the present, however, treatment is rather exacting, and it is not yet as standardized as oral sulphonamide therapy.

In the use of penicillin, concentration and frequency are all-important. The present routine procedure consists of the following stages: (1) A swab of the pus is taken for bacteriological examination. (2) The eye is then irrigated with half-normal saline at room temperature to wash away pus. (3) A nurse seated on a chair takes the baby on her lap, and another nurse is responsible for putting into the eye two drops of penicillin, 2,500 units per ml., every minute. (4) Pus does not tend to re-form while this treatment is in progress. Any secretion can readily be wiped off with pledgets of cotton-wool.

(5) Within 20 to 30 minutes the picture has changed. Although the lids are still swollen and the conjunctiva still remains moist there is now no tangible secretion. (6) After 30 minutes of this treatment the baby is returned to its cot. One drop of atropine 1% is instilled as a precautionary measure. (7) Penicillin drops are now continued at five-minute intervals for half an hour. (8) At the end of this half-hour penicillin is continued at half-hourly intervals for 6 hours, and subsequently at hourly intervals for 12 hours. By this time the eyes are as a rule normal. Occasionally there is some irritability, probably induced by impurities in the penicillin. Pure penicillin in a concentration of 10,000 units per ml., instead of the impure product in a concentration of 2,500 units, seems to give no such complications.

Failures with local penicillin treatment, as with oral sulphonamide therapy, are few. In such cases these two agents may be used in combination. A striking feature of both forms of treatment is their efficiency over the whole range of causal organisms, including the virus of ophthalmia neonatorum. Gonococcal cases respond rather more quickly than non-gonococcal ones to oral sulphonamide treatment, and it is possible that cases due to diphtheroids respond rather less readily to local penicillin therapy than those due to other organisms.

LETTERS, NOTES, ETC.

Literature on Rheumatic Diseases

Dr. F. D. Howitt writes as chairman of the Medical Board of the British Red Cross Society's Clinic for Rheumatism, Peto Place, Marylebone Road, N.W.1: It has been decided to revive the library of books on rheumatic diseases, and I should be most grateful if any of your readers could help by sending reprints or literature pertaining to the study of rheumatic diseases which would assist us in this object.

Psychology of Smoking

Dr. C. G. Eastwood (Weston-super-Mare) writes: Dr. R. H. Little (Oct. 5, 523) criticizes the answer given to a question concerning the tobacco habit published in the *Journal* of Aug. 24. Without entering into the validity, or otherwise, of the psychological explanation that smoking is a form of oral eroticism, I cannot forbear writing to protest at Dr. Little's unscientific approach to the question, as an attitude such as his is, unfortunately, all too common in so-called scientific circles. Dr. Little apparently believes that smokers carry on their vice because they like it, and that of course is obviously true. There must, however, be some reason, or reasons, why they like it, and it is that more ultimate question that the psychologist endeavours to answer. However unpalatable or even incorrect the answer may be, there is surely much more credit to men who try to supply these more ulterior answers to questions than to those who dismiss them superficially.

Midwife and Doctor: Conduct of Labour

Dr. Meave Kenny writes from the British Postgraduate Medical School, Ducane Road, W.12: From time to time a county health authority invites me to give an address at a post-certificate course for midwives, the chosen theme being usually "The Prevention of Puerperal Sepsis." On such a recent occasion I spoke to a gathering of some 120 midwives and at the close written questions were sent up to my table. Among these was: "If a midwife has to call in a doctor (of the patient's choice) and he does not wear a mask while operating on or examining the patient, what should the midwife do?" On my reading it aloud I could see that my reply was awaited with great interest by a good portion of my audience. I said: "If I were a midwife I would draw the doctor's attention to his lapse. If he refused to remedy it I would inform him that the full responsibility for the possible consequences was now his, and I would withdraw from the case." This was received well by both the midwives and the county medical officer, who was in the chair, and I was informed privately that the question had been prompted by a real distress on the part of the midwives. I would be grateful to know from your readers, especially medical officers of health, what steps they usually take when such a complaint is made to them by the midwives in their employ.

Effects of Penicillin Lozenges

Dr. I. G. Cameron (Edinburgh) writes: In your issue of Sept. 21 (p. 447) it is stated that there is little published information in this country about the side-effects of these lozenges, though an American "Digest" states that 18% of people using them develop glossitis and stomatitis. I have recently had two cases of stomatitis following the use of these tablets. In each case the signs of redness and inflammation of the soft palate, uvula, and piliars of the fauces appeared after four to five days, when the patients had used over fifty of the lozenges. It would be of considerable interest if other practitioners would trouble to write a short note of their experiences with these lozenges. My impression is that the American comment is correct and that we must watch for signs of soreness of the mouth during treatment. The signs in my two cases disappeared rapidly on stopping treatment.

Dr. P. G. Murphy (Killough, Co. Down) writes: I am interested to report a case of glossitis following the use of penicillin for tonsilitis. On Sept 21, just after reading "Effects of Penicillin Lozenges" in "Any Questions" in the *Journal* of the same date (p. 447), I saw a case of tonsillitis for which I prescribed penicillin lozenges. On Mon., Sept. 23, the patient had a marked glossitis and stomatitis. I put her on nicotinamide (orally), while stopping the penicillin, and on the following day there was no sign of the infection. I dare say that withholding the penicillin would have been effective.

The Bedside Manner

Dr. W. A. Bellamy writes from Waddesdon, Aylesbury: What does Dr. W. E. R. Branch (Oct. 5, p. 515) mean by "exploitation of the 'bedside manner'"? Surely this only entails ordinary decent behaviour of civilized society—i.e., kindness, courtesy, patience, and sympathy. Most of us would, I hope, endeavour to report ourselves thus, competition or no competition. If a man is a mannerless boor he will continue to act as such wherever he is, at the bedside, in his car, in his club, or in his home. We have heard this gibe about the "bedside manner" too often, from the lay public—who would be the first to complain if it was not forthcoming. Let us not have to listen to similar taunts from members of our own profession.

Antimalarial Drugs

Dr. C. S. P. Hamilton writes from Assam: Why is it we find eminent members of the medical profession, as well as the lesser fry, so often exaggerating their claims for the efficacy of certain antimalarial drugs and other antimalarial substances? Of late we hear most wonderful tales of cures in one day, prevention by one dose at long intervals, etc., and anti-mosquito applications which chase away all mosquitoes for months, after one spraying. This subject seems to fascinate even professors of known repute. May I as a worker in a very malarious district utter a word of warning: be careful to verify your claims, and even if then optimistic still do not fly too high. It is a serious subject, and when claims are made which afterwards prove extravagant disappointment is caused to many. Results differ so much in different countries, and even zones. An old missionary friend out here, after listening to a plausible tale spun to impress him, answered: "I am an old cat and have seen many rats in my time." Like my friend I also am an old cat, and believe what I prove and only half of what I hear. This does not mean I am a pessimist—far from it.

Laboratory Aid in General Practice

Mr. W. J. Adcock, M.P.S. (Alcester, Warwickshire), writes: I have read with great interest the letter from Dr. P. H. Kendall (Sept. 7, p. 345). The question of fallibility in regard to both clinical judgment and laboratory tests is surely largely a question of the individual skill and practice of either the clinician or the pathologist as the case may be, but there is little doubt that clinical diagnosis can often be proved by laboratory tests and the correct interpretation of the results of these tests—the latter being most important. It might interest Dr. Kendall and other practitioners to know that the Pharmaceutical Society of Great Britain have set up an examination for qualified members of their profession which deals entirely with biochemistry as applied to medicine. The Diploma in Biochemical Analysis, which can only be held by qualified pharmacists after due training and examination, enables a pharmacist holding the diploma to undertake and interpret the results of any biochemical investigation. Any doctor in need of such aids to diagnosis can, I am sure, rely on the utmost co-operation from any pharmacist who holds the diploma. At present there are a few hundred pharmacists who hold this extra qualification, and contact could be easily established by inquiry from local pharmacists or their district committees.

Books for China

Mrs. Mary Contento writes: I am a graduate of Edinburgh University and have been teaching in a Chinese university during the war. I am rather distressed at the lack of British books in China, particularly medical and scientific ones. During the war the Chinese Government has put on a great educational programme with the result that several hundred thousand young people are getting a medical and scientific education. I am anxious to get them acquainted with the latest British books on these subjects. I know that many doctors have on their shelves books and journals which we could use and which they no longer want, and so I put in this appeal for such books to be sent to Mr. Bolster, 32, Greenbank Park, Edinburgh; or direct to The President, Northwestern University, Sian, Shensi, China. The donors may rest assured that the books will be greatly appreciated and will be put to excellent use.